The Future of C4:
One Vision,
One Architecture,
One Voice

PROCEEDINGS

Advanced Planning
Briefing to Industry

November 28-29, 1995

Ritz Carlton Hotel
Tysons Corner, Virginia

Session No. 684

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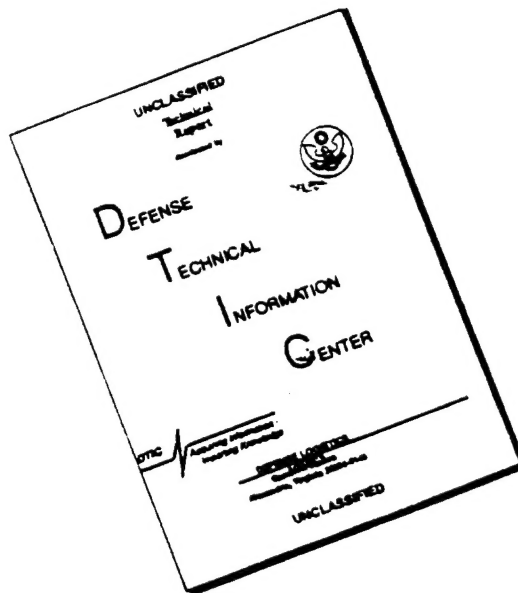
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per Acq. ltr. M95-3644

TABLE OF CONTENTS (Continuation)

DO YOU HAVE ANY COMMENTS OR RECOMMENDATIONS

FOR NEXT YEAR'S APBI-C4 CONFERENCE?????

SHOULD YOU HAVE ANY COMMENTS FROM THE 1995 APBI,

OR RECOMMENDATIONS FOR NEXT YEAR'S CONFERENCE,

PLEASE EMAIL YOUR COMMENTS TO EITHER COL

WILLIAM F. JAISSLE OR MR. JOHN R. COURTRIGHT AT THE

FOLLOWING EMAIL ADDRESS:

WILLIAM.F.JAISSLE@PENTAGON-1DMS2.ARMY.MIL or

JOHN.R.COURTRIGHT@PENTAGON-1DMS2.ARMY.MIL

One Vision, One Architecture, One Voice

LTG Otto J. Guenther

Director of Information Systems for
Command, Control, Communications
and Computers
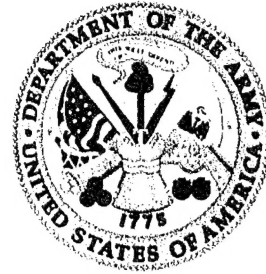
28 November 1995

Advanced Planning Briefing to Industry
Tyson's Corner, VA

Force XXI to the Installation
Doctrinal Evolution

- Hypothesis: Corps/Div. Rear Boundary is the Sustaining Base
  - Enterprise Implementation Plan
  - TRADOC PAM 525-5
  - Army Battle Command Master Plan
  - DA PAM 100-XX
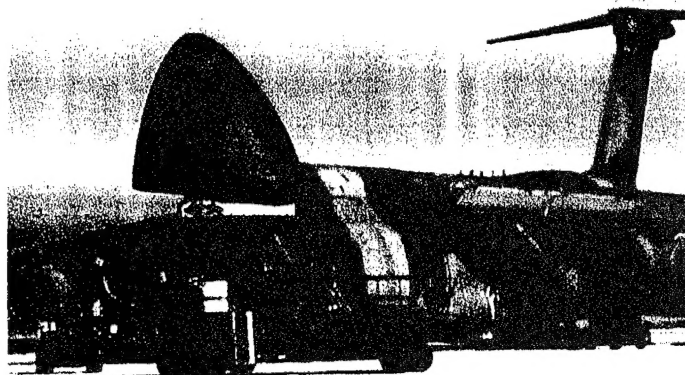
Enterprise Principle:

Power Projection

- Power Projection Doctrine
  - FM 100-5; TRADOC PAM 525-5; *Decisive Victory*
  - power projection C4I & split-base operations
  - C4I information architecture
  - DA PAM 25-1 (to be published)

Operational Evolution

- XVIII ABN Corps in Desert Shield/Desert Storm (Kuwait)
  - o tremendous information demand
  - o deployed CSS AIS assets
  - o heavy "man-in-the-loop" interface

- XVIII ABN Corps,10th MTN Div., and 25th ID in Operation Uphold Democracy (Haiti)
  - o operationally oriented
  - o multiple C4 packages
  - o true split-based operation
  - o but, required continuous engineering of communications systems
  - o but, required splitting tactical assets between the sustaining base and the theater of operations
  - o but, required kluged DISN interface
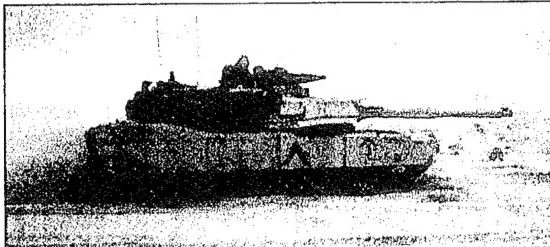
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Technical Evolution of Base Infrastructure

Historically:
Base Infrastructure consisted of Digital Islands **in an** Analog Sea

Present:
Base Infrastructure consists of Analog Islands **in a** Digital Sea

The Analog Islands = The Interfaces

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Force Projection Stages and Operating Environments

Mobilization

FORCE

Deployment

Entry Operations

Predeployment Activity

FORCE

Operations

Demobilization

Redeployment & Reconstitution

War Termination & Postconflict Operations

Strategic — Operational/Theater — Tactical

Sustaining Base
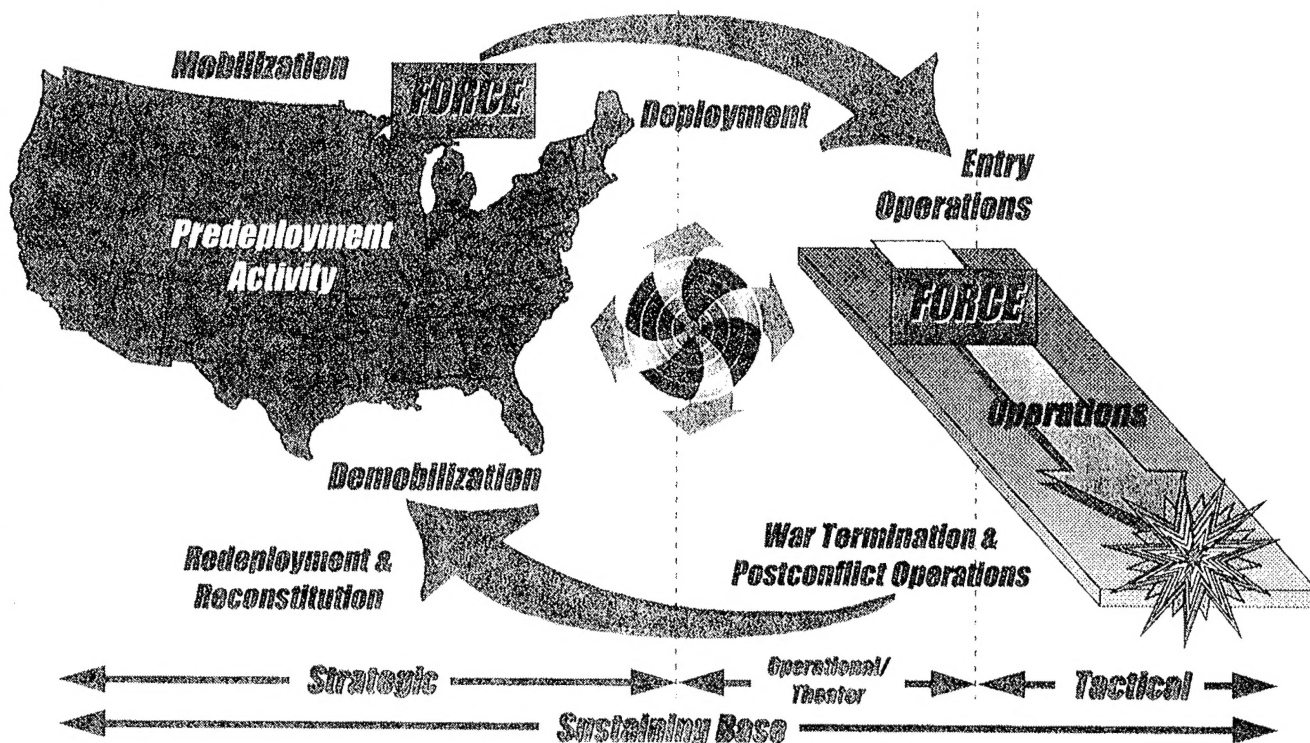
What Are These Analog Islands?
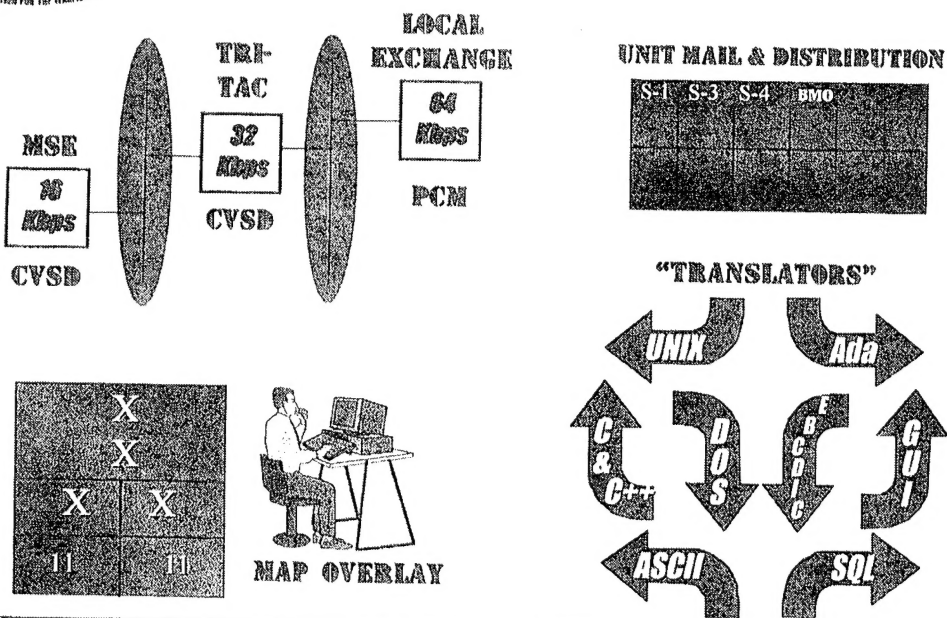
LOCAL EXCHANGE

TRI-TAC

MSE

16 Kbps

CVSD

32 Kbps

CVSD

64 Kbps

PCM

UNIT MAIL & DISTRIBUTION

S-1 S-3 S-4 BMO

"TRANSLATORS"

UNIX   Ada

C & C++   DOS   EBCDIC   GUI

ASCII   SQL

X X
X X
11   11

MAP OVERLAY

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Why Digitize the Installation?

- FORCE XXI = digitizing the battlefield
- BUT, the Sustaining Base is an Extension of the Battlefield !
- THEREFORE, to achieve a seamless, unimpeded flow of information from the Sustaining Base to the Main Battle Area with a minimum of human intervention and "real-time" engineering we must:
- DIGITIZE THE INSTALLATION
  - Eliminate the ANALOG Islands!

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Program Synchronization Challenge

ACOE/JCOE ARCHITECTURE

SUSTAINING BASE

CSS STOVEPIPE

NATIONAL ASSETS

INTEL

INTEL

STAMIS

CTAPS

ALL MUST FIT TOGETHER!! CAPABILITY OF FIGHTING FORCE, WEAPONS, SENSORS, ETC., ARE IMPACTED

EMERGING REQUIREMENTS
Theater Missile Defense
Finance Battlefield System
Telemedicine
TAV/ITV/OSC/GTN
SBIS

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Enterprise Principles

Warfighter Focus

Joint Interoperability

Enterprise

Information Technology

Multi-Level Security

Space-Based Systems

Digitization

Power Projection

Modeling and Simulation

Commercial Technology

Spectrum Supremacy
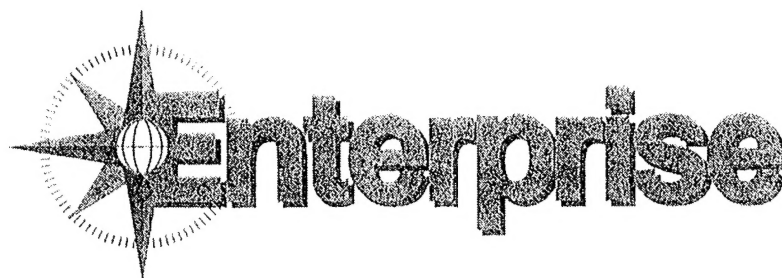
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Architecture Must Come First!

- One Architecture, Three Dimensions
  - o Operational dimension
  - o Systems dimension
  - o Technical dimension
- Moving toward Seamlessness:
  - o From the Sustaining Base to the Foxhole
  - o New requirement of a Power Projection force

Operational Architecture

Wingman PLT CO CDR

Information Flow: Call for Fire

CO FIST TF FSE BDE FSE

Howitzer Sec BTY FDC BN RDC

- Information required
- Information form (voice, data, imagery)
- User functions
- Operational /unit relationships
- Performance bounds

System Architecture

Host

- Components and their topology
- Networks/internetting
- Capacity/performance

Technical Architecture

Information Standards
- Defense Data Repository System
- C2 Core Data Model
- Variable Message Format
  Call For Fire K96.66
  From, To and Info
  Msg Designator
  Target Number

Information Processing Profile

Information Transport Profile

Human Computer Interface Standard

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- Based on Force XXI, Army Enterprise, and C4I for the Warrior
- Building blocks for hardware, software, and communications

- TA is applicable to all information reliant systems:
  - C4I
  - Weapons
  - Combat Support
  - Combat Service Support
- TA has direct influence on:
  - Task Force XXI
  - DIV XXI
  - CORPS XXI
  - SUSTAINING BASE !

ENTERPRISE PRINCIPLES

OPERATIONAL   SYSTEMS   TECHNICAL
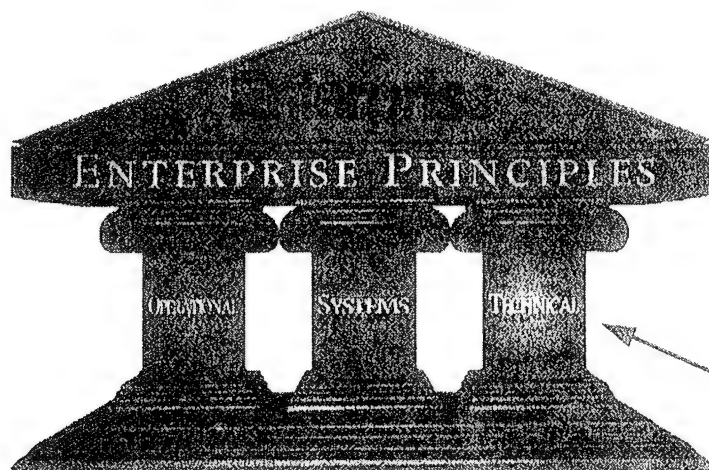
Technical Architecture is a pillar of Enterprise

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Information Technology Tightens the Decision Loop

Sensor

Transport   Transport

OBSERVE

S h o o t e r

Information Standards   ORIENT   Information Processing Standards

ACT

DECIDE

Transport   Transport
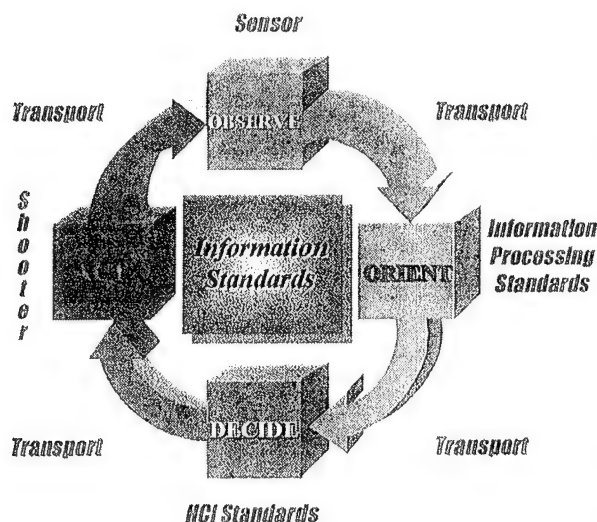
HCI Standards

Technical Architecture

- **Information Standards**
  The underpinnings of interoperability
  Provides for the common understanding of information
- **Information Transport Standards**
  Moves the information without roadblocks
- **Information Processing Standards**
  Ensures the computer knows how to handle the information
- **Human-Computer Interface Standards**
  A standard way to enhance human understanding

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Technical Information Architecture Status
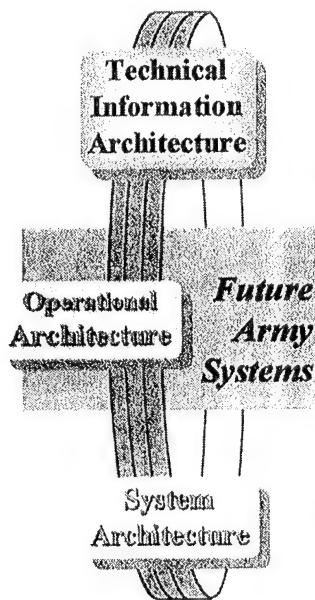
- Version 3.1 was signed and mandated by Mr. Decker (AAE) on 31 Mar 95
- Version 4.x is a Working Draft
- Verison 3.1 is available on the **IMA BBS and the DISC4 WWW HomePage**
  - download: <http://www.army.mil/disc4-pg/test/arch/projects/ta_dload.htm
  - read online: < http://129.83.53.102/TA31/tech.htm>
- Version 4.x is available:
  - http://129.83.53.102/
  - http://www.hqda.army.mil/webs/techarch/

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C4 Goals

Seamless C4I Packages
- sustaining base
- strategic-tactical interface
- operational

Rapid Acquisition
- modeling & simulation
- prototyping
- commercial-off-the-shelf
- process improvement

Lower Life Cycle Cost
- information standards
- reduced testing
- reduced complexity
- reduced man-in-the-loop
- software reuse

Doctrine-Based
- C4I for the Warrior
- Enterprise Strategy
- Force XXI
- FM 100-5
- TRADOC PAM 525-5
- DA PAM 100-XX

Interoperability
- communications
- command and control
- sustaining base

FORCE XXI

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- Developing technical, operational, and systems architecture
- Unifying and streamlining the acquisition processes:
  - DoD 5000/8000 series guidance
  - lengthy acquisition cycle (MILSTD, Test-Test-Test)
  - cumbersome, expensive software development
- Patchwork connection of sustaining base, communications, and theater/ tactical C2 and STAMIS systems

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Today's C4I System's Architecture
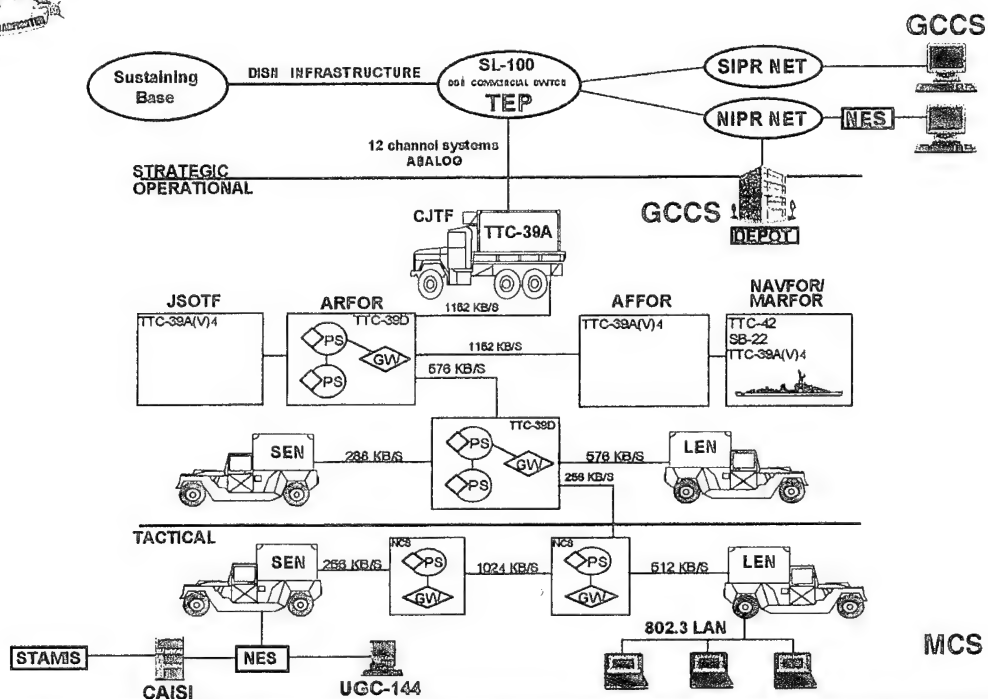
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Today's C2, Communications and STAMIS Systems
Analog to Digital Conversion

$$f_n = \frac{N}{2} \text{ Hz}$$

STAMIS
- SIDPERS 2.75
- SAMS
- SARSS/SAILS
- DAMMS
- TAMMIS
- STANFINS
- ISMs
- Command Uniques

Communications
- SINCGARS
- MSE
- EPLRS
- TAC-SAT/SATCOM
- MSG Switch (TYC-39)
- CKT Switch (TTC-39)
- DISN/STEP
- 802.3 LAN
- MTMP/CUITIN/OSCAR
- DODIIS/JWICS/TROJAN

(10101010)

INTEL
- InteLink
- TENCAP
- ASAS
- CTT

C2 Systems
- WWMCCS
- MCS (ATCCS)
- AUTODIN
- TACFIRE
- TACCIMS
- EUTACCS

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In Transition
Fusing C2, STAMIS, Intel & Communications = Communication Information System

$$f_n = \frac{N}{2} \text{ Hz}$$

(10101010)

CONUS/Installation

STAMIS
- SIDPERS 3.0
- SAMS
- SARSS
- DAMMS-R
- TAMMIS
- STANFINS
- SBIS/RCAS
- InteLink

Communications
- SINCGARS
- MSE
- EPLRS
- TAC-SAT/SATCOM
- STAR-T
- MTMP/CUITIN/ OSCAR
- 802.3 LAN/802.11
- DISN/STEP
- JWICS/TROJAN
- DMICS/CTT

TACTICAL INTERNET

Theater/Tactical

- GCCS
- MCS (ATCCS)
- FBCB2
- TENCAP
- InteLink

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Objective State
Digital Power Projection

(10101010)

CONUS/Installation

C2 Systems
- GCCS
- ABCS
- MCS
- FBCB2

STAMIS
- SIDPERS 3.0
- SAMS/SARSS
- DAMMS-R
- TAMMIS
- STANFINS
- SBIS/RCAS

INTEL
- IntelLink

Communications
- SINCGARS
- MSE
- EPLRS
- TAC-SAT/SATCOM
- STEP
- STAR-T
- MTMP/CUITIN/OSCAR
- 802.3 LAN/802.11
- DII/DISN/DMS
- JMICS/CTT

TACTICAL INTERNET

Theater/Tactical

C2 Systems
- GCCS
- ABCS/MCS
- FBCB2

STAMIS
- SIDPERS 3.0
- SAMS/SARSS
- DAMMS-R
- TAMMIS
- STANFINS
- SBIS

INTEL
- ASAS/TENCAP
- IntelLink
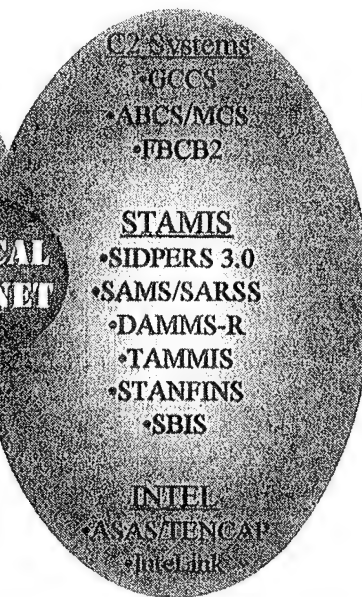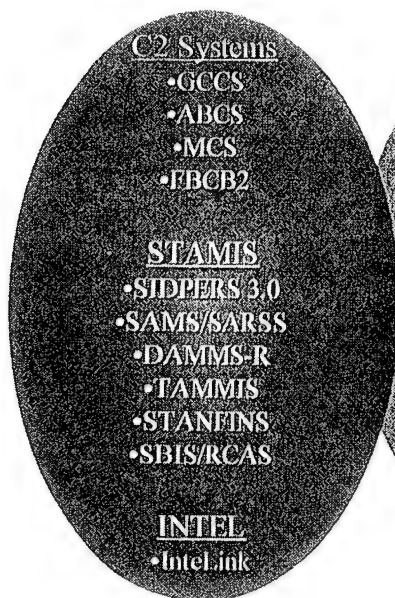
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Objective C4I Systems Architecture

Sustaining Base — DISN INFRASTRUCTURE — STEP

POWER PROJECTION PLATFORMS — MACOMS — DOD — DISN — OTHER SERVICES — PORTS

4.608 MB/S

STRATEGIC

OPERATIONAL

CJTF HUB

1.644 MB/S

ARFOR HUB — High Capacity Trunk Radios 45 MB/S — FIBER OPTICS — HUB — JSOTF AFFOR NAVFOR MARFOR

4.608 MB/S

Video Data Video — On The Move — 64 KB/S — HUB — 2.048 MB/S — UHF LOS W/ EMBEDDED FUTURE SES

TACTICAL

4.608 MB/S

TMO TMO TMO TMO — HUB — 1.644 MB/S — SMART-T W/ EMBEDDED FUTURE SES

APPLIQUE — PORTEZZA +

11/22/95 Tactical Internet

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Threats and Vulnerabilities to C2 Information Systems

DISC4 — ONE VOICE FOR THE ARMY

C2 INFORMATION SYSTEMS

- POOR SSE
- FUNDING
- RF EFFECTS
- POLICY
- HACKERS
- INSIDERS
- Malicious Code
- VIRUSES
- NATURAL DISASTERS
- CRIMINAL ELEMENT
- UNTRAINED USERS
- INTERNET SURFING
- FOREIGN INTEL
- UNTRAINED SYSTEM ADMINISTRATORS
- TERRORISTS

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DISC4 — ONE VOICE FOR THE ARMY

Army C2 Protect Library

- VOL. 1 — C2 Protect Program Mgmt Plan — FOUO
- VOL. 2 — C2 Protect Master Tng Mgmt Plan — UNCLAS
- VOL. 3 — C2 Protect Implementation Plan — FOUO
- VOL. 4 — Intel Support C2 Protect Action Plan — FOUO
- VOL. 5 — C2 Protect Resourcing Proposal — FOUO
- VOL. 6 — C2 Protect Threats and Vulnerabilities — SECRET

C2 Protect Planning Evolves into AR XXX-XX

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Bringing It All Together

- **Organizationally (One Voice - DISC4)**
  - **The Signal Corps Team (DISC4-SIGCEN-ISC-CECOM)**
- **Conceptually (One Vision - Army Enterprise, JCS C4I for the Warrior)**
- **Technically (One Architecture - Operational, System, Technical)**
- **With the following objectives:**
  - **ensure joint interoperability**
  - **elimination of the analog islands**
  - **elimination of stovepipe systems**
  - **streamlined acquisition**
  - **reduce costs while enhancing capability**

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Signal Organization and Mission Alignment (SOMA)

- Totally Examining DISC4 and Community
- Final Decisions to be determined
- Guiding Principles
  - focus on the warfighter
  - structure for Force XXI
  - maintain operational support throughout transition/ reorganization
  - focus on core competencies
  - consolidate functions for seamless support -- sustaining base to foxhole
  - sensitive to people impacts
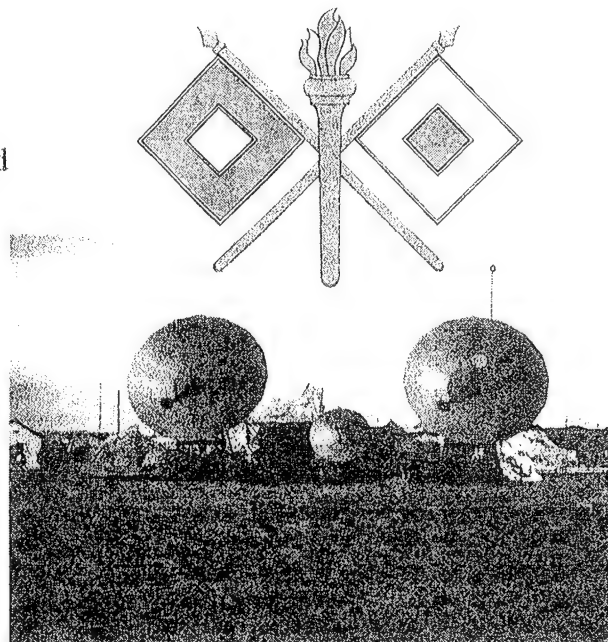
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JWID '96

- **Joint-** addresses issues across the Services
- **Warrior-** focused on the WARFIGHTER
- **Interoperabilty-** technical solutions to JOINT INTEROPERABILTIY PROBLEMS
- **Demonstration-** low risk environment
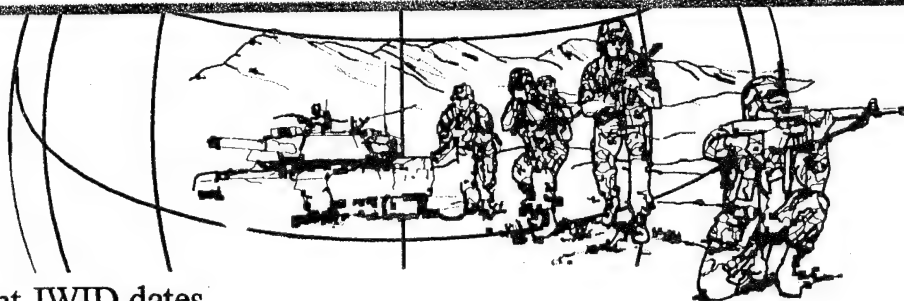
- Important JWID dates
  - *Commerce Business Daily* announcement expected December '95
  - VIP week demonstrations 9-13 September '96
- JWID '96 on the World Wide Web: < http://www.army.mil/jwid96.htm>

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Cost Efficiencies

- Seamless Interoperability without Undue Constraints
  - decentralized execution
    - MACOMs get set resource levels (manpower and funding)
  - centralized monitoring
    - compliance-based oversight by HQDA (architectures and standards)
- FY 97-01
  - reduce automation real expenses by $50m/yr.
  - > $2.5 m = HQDA oversight
  - structural efficiencies for global C4 operations
  - short term investment with long-term cost savings
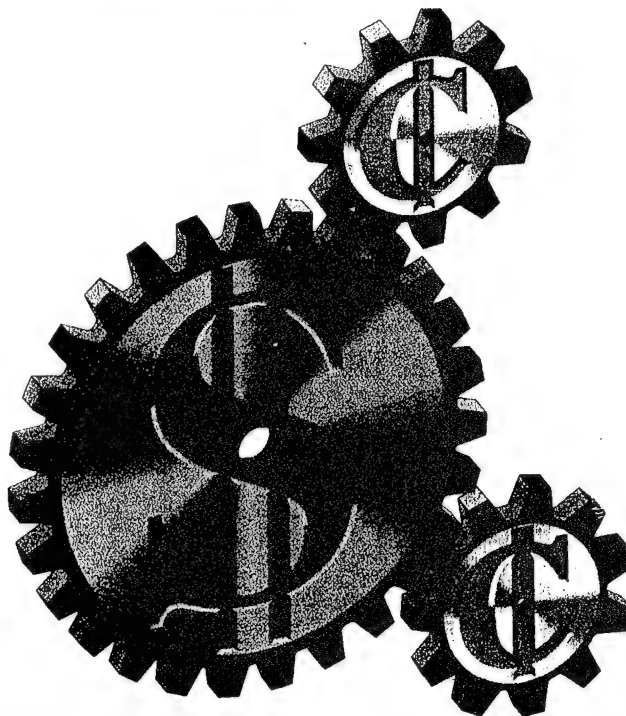
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Concerns and Issues

- Effectively digitizing the battlefield requires better synchronization from sustaining base to the foxhole
- Split-Based Operations ARE NOT leveraging the base digital infrastructure
- A resource-constrained environment demands more efficient Information Systems and synergistic Program Management.
- To leverage Army investment, we must move from command-unique systems to standard systems

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Conclusions

- A Unifying Architecture is Key
- The Warfighter Focus now extends to traditional sustaining base and infrastructure systems
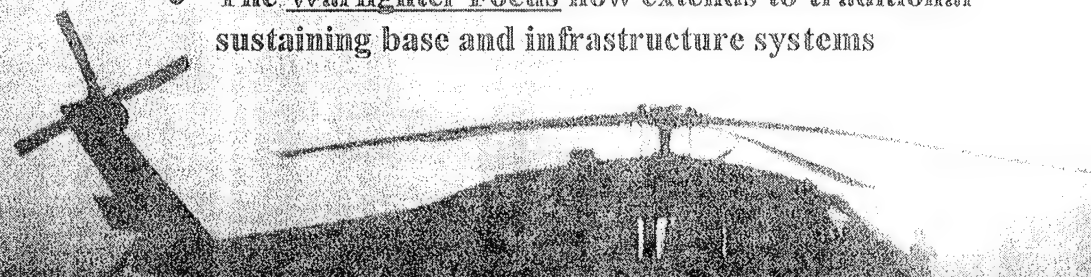
- Force XXI is Digitization of the Installation as well as Digitization of the Battlefield
- Need to establish a Strategic-Tactical Fusion oversight:
  - systems architecture
  - Enterprise principle: modernize power projection platforms
  - ASB recommendation: PEO-installation
  - many players are key to the future of Army power projection

ADVANCED PLANNING
BRIEFING TO INDUSTRY
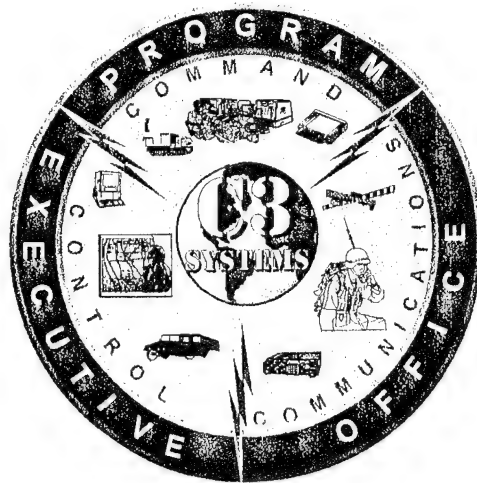
MG William H. Campbell
PEO C3S

PURPOSE

TO PROVIDE INDUSTRY INSIGHT INTO
FUTURE OPPORTUNITIES ON C4
WARFIGHTING PROGRAMS

AGENDA

- PEO C3S MERGER, PRODUCT LINES, ORGANIZATION

- OVERARCHING ACQUISITION STRATEGY FOR C4 SYSTEMS

- C4 CONTRACT OPPORTUNITIES

PEO CCS and PEO COMM MERGED INTO PEO C3S

GOAL

TO FORM A STREAMLINED MANAGEMENT STRUCTURE TO SUPPORT THE DIGITIZED BATTLEFIELD, FORCE XXI AND MODERNIZATION OF ARMY C3 SYSTEMS SUPPORTING THE WARFIGHTER FROM EAC TO THE FOXHOLE.

REENGINEER OURSELVES TO:
- INTEGRATE PROGRAMS HORIZONTALLY AND VERTICALLY
- REDUCE CYCLE TIME IN ACQUISITION AND FIELDING
- SYNCHRONIZE COMPUTER AND COMMUNICATIONS INFRASTRUCTURES AND TECHNOLOGY INSERTION
- LEVERAGE COMMERCIAL TECHNOLOGIES
- ACHIEVE OPERATIONAL ECONOMIES AND REDUCE LIFE CYCLE COSTS

INTENT

MERGED ORGANIZATIONS ON 1 JUL 95
- PEO STAFFS INTEGRATED
- PM OFFICES TRANSFERRED IN PLACE
- SEVERAL PM OFFICES TO BE MERGED OVER NEXT 2 YEARS

ORGANIZATION

PRODUCT LINES AND PM OFFICES

COMMAND and CONTROL and COMPUTERS

- Air Defense Command and Control Systems (ADCCS) -- Forward Area Air Defense Command and Control (FAADC2)
- Intelligence Fusion -- All Source Analysis System (ASAS)
- Common Hardware and Software (CHS)
- Field Artillery Tactical Data Systems -- Advanced Field Artillery Tactical Data System (AFATDS)
- Operations Tactical Data Systems -- Maneuver Control System (MCS)
- Combat Terrain Information System (CTIS) -- Digital Topographic Support System/Quick Response Multicolor Printer (DTSS/QRMP)
- Integrated Meteorological System (IMETS)
- Strategic and Theater Command and Control Systems (STCCS)
- Appliqué -- TF XXI Weapons Platform Computer
- Counternarcotics Command Management System (CN/CMS)

COMMUNICATIONS

- Satellite Communications (SATCOM)
- Milstar (Army)
- Global Positioning System (GPS)
- Joint Tactical Communication Systems (JTACS)
- Tactical Radio Communication Systems (TRCS)

PROGRAM EXECUTIVE OFFICE
COMMAND, CONTROL, AND COMMUNICATIONS SYSTEMS

PENTAGON LNO
MAJ MIKE SMITH - DSN 225-8446
MS. MARY QUIROZ - DSN 225-8444
MRS. KATHY COLLIER - DSN 225-8447

OFFICE OF THE PEO		
MG WILLIAM CAMPBELL, PEO	427-4937	SFAE-C3S
MR. BENNETT HART, DPEO CCS	427-2055	SFAE-C3S-CCS
MR. ROBERT LEHNES, DPEO COMM(A)	427-4148	SFAE-C3S-CM
MAJ STEPHEN WINTER, XO	532-3938	SFAE-C3S-XO

PEO CORE FAX: 908-427-4030
E-Mail: name@c3b16.monmouth.army.mil
Comm/DSN Conversion:
222 = (703)695-XXXX
235 = (703)275-XXXX
258 = (505)678-XXXX
345 = (703)355-XXXX
427 = DSN 987-XXXX
532 = DSN 992-XXXX
658 = (703)805-XXXX
768 = (817)288-XXXX

ATCCS VI TEST OFFICE — IPT PROGRAM OFFICE

HORIZONTAL TECH INTEG | FORCE XXI INTEG | READINESS ENGINEERING | PROG SPT/BUS MGT | OPERATIONS

FIO (FT HOOD)

HUMAN RESOURCES

PM ADCCS	PM APPLIQUÉ (PROV)	PM CHS	PM CN/CMS	PM FATDS
PM GPS	PM INTEL FUSION	PM JTACS	PM MILSTAR (ARMY)	PM OPTADS
PM SATCOM	PM STCCS	PM TRCS	PD CTIS	PD IMETS

As Of: 1 September 1995

C3S ORG

FT. MONMOUTH N.J.

PM CHS

PM FATDS

PM MILSTAR (A)

PM JTACS

PM TRCS

PM SATCOM

PM GPS

PM APPLIQUÉ (P)

WASHINGTON D.C. AREA

PM STCCS

PM CSSCS

PD CTIS

PM INTEL FUSION

PM CN/CMS

- JOINT TERMINAL

  PROGRAM OFFICE

PM MILSTAR (A) (LNO)

PD IMETS, NM

PM ADCCS, AL
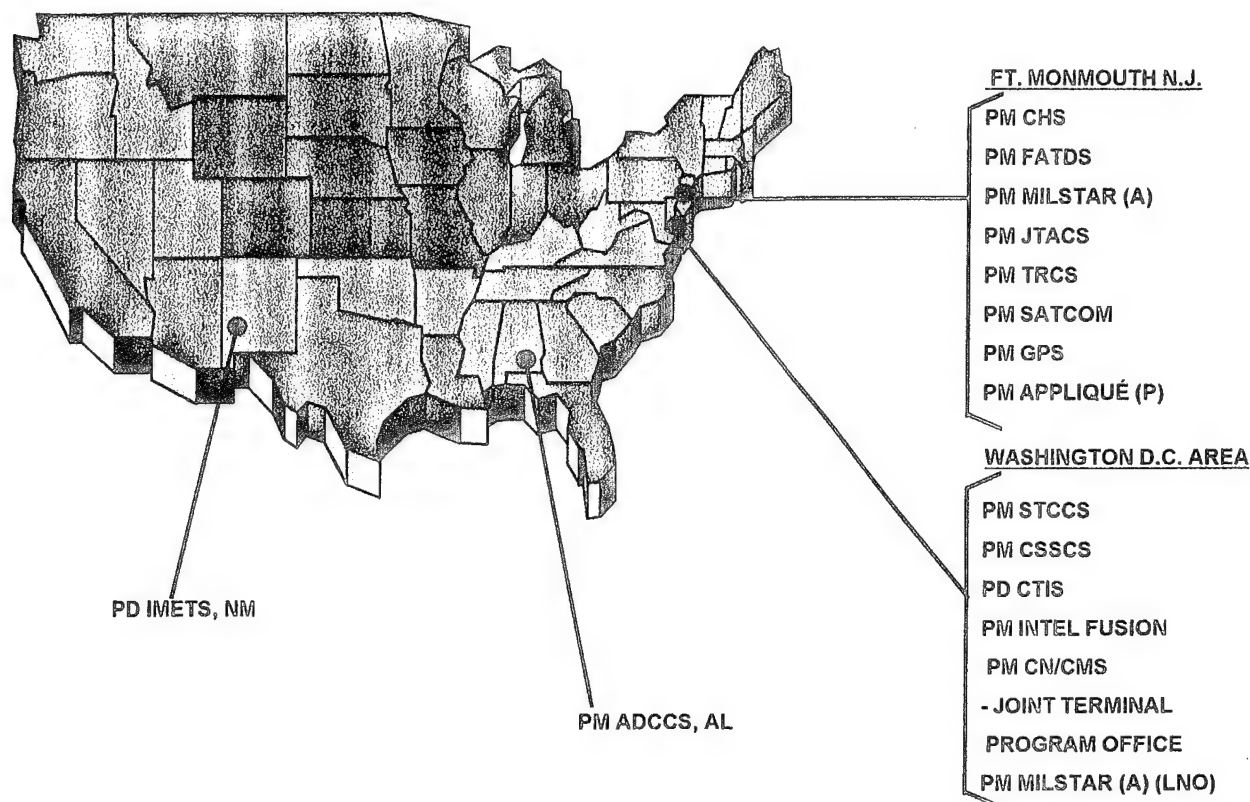
OVERARCHING ACQUISITION STRATEGY

- ° OPEN SYSTEMS *ARCHITECTURE*
- ° *COMMON* HARDWARE AND SOFTWARE
- ° MAINSTREAM COMMERCIAL *STANDARDS* -- MILSPEC ONLY WHEN FULLY JUSTIFIED
- ° *PERFORMANCE* SPECS -- NDI -- REPACKAGED AS REQUIRED
- ° SYSTEMS DESIGNED FOR *TECHNOLOGY INSERTION*
  - – CLOSELY LINKED TO *RDEC* ADVANCED DEVELOPMENT INITIATIVES
  - – UPGRADED WITH *COMMERCIAL* PRODUCTS
- ° *MULTIYEAR* CONTRACTS WITH *P3I* AND PRODUCTION *OPTIONS*
- ° *ANNUAL* CAPABILITY PACKAGE DELIVERIES ON SOFTWARE CONTRACTS -- FULL FUNCTIONALITY AT COMPLETION
- ° STREAMLINE ACQUISITION PROCESSES
- ° CONSTANTLY LOOK FOR NEW OPPORTUNITIES -- MOD TO EXISTING CONTRACTS FAVORED OVER NEW STARTS

C4 CONTRACT OPPORTUNITIES

- ALL PROGRAMS HAVE *ON-GOING* DEVELOPMENT AND/OR PRODUCTION CONTRACTS

- *EXISTING CONTRACTS* PROVIDE MAJOR AVENUE FOR *TECHNOLOGY INSERTION* OR SYSTEM IMPROVEMENTS

- SEVERAL *OPPORTUNITIES* FOR NEW CONTRACTS, PRODUCTION OPTIONS, UPGRADES, AND PROGRAM SUPPORT

- DATA SHEETS WITH *POC* NAME AND PHONE NUMBER PROVIDED

COMMAND and CONTROL SYSTEMS CONTRACT OPPORTUNITIES

- **MANEUVER CONTROL SYSTEM (MCS) DEVELOPMENT**

- **TACTICAL OPERATION CENTER (TOC) INTEGRATION (TIME & MATERIALS)**

- **FORWARD AREA AIR DEFENSE C2 (FAADC2) SYSTEM BLOCK IV DEVELOPMENT**

- **DIGITAL TOPOGRAPHIC SUPPORT SYSTEM/QUICK RESPONSE MULTICOLOR PRINTER (DTSS/QRMP) PRODUCTION**

- **FIELD ARTILLERY TACTICAL DATA SYSTEM PROGRAM MANAGEMENT SUPPORT**

CONTRACT OPPORTUNITY

TITLE: PM OPTADS - MANEUVER CONTROL SYSTEM BLOCK IV

OBJECTIVE: SOFTWARE DEVELOPMENT - VERSION 12.1, VERSION 12.2, VERSION 12.3

CONTRACT TYPE: COMPETITIVE COST PLUS INCENTIVE FEE

KEY MILESTONES: RFP RELEASE --DEC 95

CONTRACT AWARD -- 4TH QTR FY96

ESTIMATED VALUE: $60M - $90M

POC NAME/PHONE: MS GIRGUS / (908) 532-2947

CONTRACT OPPORTUNITY

TITLE: TACTICAL OPERATIONS CENTER (TOC) INTEGRATION

OBJECTIVE: PROVIDE TOC AUTOMATION CAPABILITY TO TOTAL ARMY FORCE STRUCTURE

CONTRACT TYPE: COMPETITIVE COST PLUS INCENTIVE FEE

KEY MILESTONES: RFP RELEASE -- 1ST QTR FY98

CONTRACT AWARD -- 1ST QTR FY99

INITIAL FIELDING -- 3RD QTR FY99

ESTIMATED VALUE: TBD (CUSTOMER FUNDED)

POC NAME/PHONE: LTC J. MORAN / (205) 895-5437

CONTRACT OPPORTUNITY

TITLE: FAAD C2

OBJECTIVE: BLOCK IV DEVELOPMENT (P3I)

CONTRACT TYPE: COMPETITIVE COST PLUS INCENTIVE FEE

KEY MILESTONES: RFP RELEASE: 2ND QTR FY98

CONTRACT AWARD: 1ST QTR FY99

INITIAL FIELDING: 3RD QTR FY99

ESTIMATED VALUE: APPROX. $45m

POC NAME/PHONE: LTC E. SIOMACCO / (205) 895-5437

CONTRACT OPPORTUNITY

TITLE: PM CTIS - DIGITAL TOPOGRAPHIC SUPPORT SYSTEM/QUICK RESPONSE MULTICOLOR PRINTER (LIGHT) (DTSS/QRMP (LT))

OBJECTIVE: PRODUCTION OF 15 DTSS/QRMP (LT) SYSTEMS

CONTRACT TYPE: COMPETITIVE FIRM FIXED PRICE

KEY MILESTONES: RFP RELEASE -- MAY 97

CONTRACT AWARD -- NOV 97

FIELDING SCHEDULE NOV 98 THROUGH 2002

ESTIMATED VALUE: $30M

POC NAME/PHONE: MR. THACKER / (703) 355-2876

CONTRACT OPPORTUNITY

TITLE: PM FATDS PROGRAM MANAGEMENT SUPPORT

OBJECTIVE: PROVIDE FIELD ARTILLERY AND FIRE SUPPORT PROGRAM MANAGEMENT SUPPORT FOR PM FIELD ARTILLERY TACTICAL DATA SYSTEMS (PM FATDS) IN THE AREAS OF SYSTEM ENGINEERING, READINESS MANAGEMENT, TEST & EVALUATION, INTEROPERABILITY, PROGRAM MANAGEMENT, AND SOFTWARE ENGINEERING.

CONTRACT TYPE: COMPETITIVE COST PLUS FIXED FEE, LEVEL OF EFFORT OR TIME & MATERIAL

KEY MILESTONES: CONTRACT AWARD DEC 1996

ESTIMATED VALUE: $11M

POC NAME/PHONE: ROBERT VARCA/ (908) 532-3993

COMMUNICATION SYSTEMS CONTRACT OPPORTUNITIES

- MILSTAR -- SMART-T AND SCAMP PRODUCTION, TRAINING, MATERIEL FIELDING

- SATCOM -- STAR-T, UNIVERSAL MODEM, AN/GSC-52 MODERNIZATION, DSCS SPECTRUM MANAGEMENT AND PLANNING, ODOC PLANNING SOFTWARE, DIMS AUGMENTATION, COMSEC REPLACEMENT

- JTACS -- HIGH CAPACITY TRUNK RADIO, FLY AWAY MESSAGE SWITCH, KEY MANAGEMENT SYSTEM SOFTWARE

- GPS -- CARGO UTILITY GPS RECEIVER

- TRCS -- SINCGARS PRODUCTION, NEAR TERM DIGITAL RADIO

CONTRACT OPPORTUNITY

TITLE: PM MILSTAR - SMART-T

OBJECTIVE: MILSTAR HMMWV MOUNTED SATELLITE TERMINAL (LDR/MDR), TO PROVIDE RANGE EXTENSION TO MSE, LPD/LPI, 75-1.544 MBPS, ANTI-JAM

CONTRACT TYPE: LRIP/FSP FFP, DOWN SELECTIONS FROM DUAL DEVELOPMENT CONTRACTORS

KEY MILESTONES: CONTRACT AWARD, 2ND QTR FY96

ESTIMATED VALUE: COMPETITION SENSITIVE

POC NAME/PHONE: COL MICHAEL R. MAZZUCCHI / (908) 532-9767 ext 4001

CONTRACT OPPORTUNITY

TITLE: PM MILSTAR - SMART-T

OBJECTIVE: MATERIAL FIELDING SUPPORT

CONTRACT TYPE: COMPETITIVE TIME AND MATERIALS

KEY MILESTONES: INITIAL FIELDING ACTIVITIES BEGIN, 1ST QTR FY99

ESTIMATED VALUE: TBD

POC NAME/PHONE: COL MICHAEL R. MAZZUCCHI / (908) 532-9767 ext 4001

CONTRACT OPPORTUNITY

TITLE: PM MILSTAR - SMART-T

OBJECTIVE: INTERACTIVE COURSEWARE TO PROVIDE RESIDENT AND SUSTAINMENT TRAINING AT THE US ARMY SIGNAL SCHOOL

CONTRACT TYPE: COMPETITIVE COST PLUS INCENTIVE FEE

KEY MILESTONES: DEVELOPMENT EFFORT BASED ON PERFORMANCE SPECIFICATIONS DEVELOPED BY PRODUCTION CONTRACTOR, 1ST QTR FY97

ESTIMATED VALUE: TBD

POC NAME/PHONE: COL MICHAEL R. MAZZUCCHI / (908) 532-9767 ext 4001

CONTRACT OPPORTUNITY

TITLE: PM MILSTAR, SCAMP, BLOCK I

OBJECTIVE: MILSTAR MANPORTABLE TERMINAL, NTE 37 LBS., LDR, LPD/LPI, ANTI-JAM

CONTRACT TYPE: COMPETITIVE FULL SCALE PRODUCTION FIRM FIXED PRICE

KEY MILESTONES: CONTRACT AWARD: 2ND QTR 96

ESTIMATED VALUE: COMPETITION SENSITIVE

POC NAME/PHONE: COL MICHAEL R. MAZZUCCHI / (908) 532-9767 ext 4001

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CONTRACT OPPORTUNITY

TITLE: PM MILSTAR - SCAMP, BLOCK II

OBJECTIVE: MILSTAR MANPACKABLE TERMINAL, 12-15 LBS

CONTRACT TYPE: TBD

KEY MILESTONES: ENGINEERING FEASIBILITY EFFORTS, FY96-99

ESTIMATED VALUE: TBD

POC NAME/PHONE: COL MICHAEL R. MAZZUCCHI / (908) 532-9767 ext 4001

CONTRACT OPPORTUNITY

TITLE: PM SATCOM - SHF TRIBAND ADVANCED RANGE EXTENSION TERMINAL(STAR-T) FOR SOF

OBJECTIVE:
– PROVIDE SHF TRIBAND CAPABILITY
– UTILIZE NDI/COTS/GOTS EQUIPMENT
– REPLACE EXISTING GMF TERMINALS

CONTRACT TYPE: COMPETITIVE FIRM FIXED PRICE FOR HARDWARE WITH OPTIONS FOR 8 YEARS
T&M FOR SERVICES FOR UP TO 10 YEARS

KEY MILESTONES: RFP RELEASE -- 31 JAN 96

CONTRACT AWARD -- 4TH QTR FY96

ESTIMATED VALUE: $280MILLION

POC NAME/PHONE: MR. VELEZ/ (908) 532-9727 ext 6840

CONTRACT OPPORTUNITY

TITLE: PM SATCOM - UNIVERSAL MODEM SYSTEM

OBJECTIVE:
- ANTI-JAM, ANTI-SCINTILLATION, LPI, LPD
- SHF SATELLITE MODEM
- REPLACE THE USC-28 AND OM-55
- U.S., UK, AND FRANCE COOPERATIVE DEVELOPMENT PROGRAM

CONTRACT TYPE: COMPETITIVE PRODUCTION, FIXED PRICE AWARD FEE

KEY MILESTONES:
RFP RELEASE --- APRIL 1996
CONTRACT AWARD --- 2ND QTR FY97

ESTIMATED VALUE: $200 MILLION

POC NAME/PHONE: LTC SIDWELL / (908) 532-9727 ext 6828

CONTRACT OPPORTUNITY

TITLE: PM SATCOM -AN/GSC-52 MODERNIZATION (PRODUCTION) PROGRAM

OBJECTIVE:
- EXTEND LIFE OF TERMINALS
- IMPROVE OPERATIONAL OPERABILITY
- INCREASE RELIABILITY
- REDUCE OPERATING COSTS
- PROVIDE COMMONALITY AMONG STRATEGIC TERMINALS

CONTRACT TYPE: COMPETITIVE FIRM FIXED PRICE FOR HARDWARE, SOFTWARE AND ILS EFFORTS
T&M FOR INSTALLATION, CONTRACTOR DEPOT SUPPORT, S/W SUPPORT AND ENGR SUPPORT.

KEY MILESTONES:
RFP RELEASE -- 3RD QTR FY97
CONTRACT AWARD --2ND QTR FY98

ESTIMATED VALUE: $70M

POC NAME/PHONE: MR. ANDERSON / (908) 532-0995

CONTRACT OPPORTUNITY

TITLE: PM SATCOM - DSCS SPECTRUM MANAGEMENT SYSTEM

OBJECTIVE:
– REPLACEMENT FOR THE AUTOMATIC SPECTRUM ANALYZER

– MONITOR THE COMMUNICATIONS BANDS

– PERFORM NETWORK CALCULATIONS

CONTRACT TYPE: COMPETITIVE FIRM FIXED PRICE

KEY MILESTONES: REP RELEASE -- JAN 99
CONTRACT AWARD - - JAN 00

ESTIMATED VALUE: $8M

POC NAME/PHONE: MR. JOHNSON / (908) 532-5293

CONTRACT OPPORTUNITY

TITLE: PM SATCOM - OBJECTIVE DSCS OPERATIONS CENTER (ODOC) PLANNING SOFTWARE

OBJECTIVE: PROCURE NEW SOFTWARE PACKAGE THAT WILL PLAN, MONITOR AND CONTROL THE DSCS & COMM SATELLITE COMMUNICATIONS NETWORKS.

CONTRACT TYPE: COMPETITIVE FIRM FIXED PRICE

KEY MILESTONES: RFP RELEASE -- JAN 97
CONTRACT AWARD -- JAN 98

ESTIMATED VALUE: $10M

POC NAME/PHONE: MR. D MORRISSEY / (908) 532-9728 ext 5808

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CONTRACT OPPORTUNITY

TITLE: PM SATCOM - DIMS AUGMENTATION

OBJECTIVE: INCREASE THE CAPABILITY OF THE DOSS/DIMS TO INCLUDE OPERATION OF ALL DSCSOC SUBSYSTEMS FROM A SINGLE WORKSTATION.

CONTRACT TYPE: COMPETITIVE FIRM FIXED PRICE

KEY MILESTONES: RFP RELEASE -- JAN 97

CONTRACT AWARD -- JAN 98

ESTIMATED VALUE: $21M

POC NAME/PHONE: MR. R. JOHNSON / (908) 532-5293

CONTRACT OPPORTUNITY

TITLE: PM SATCOM - REPLACEMENT BATSON

OBJECTIVE: REPLACE THE BATSON COMSEC EQUIPMENT. THE BATSON IS NEARING THE END OF ITS PLANNED LIFE CYCLE.

CONTRACT TYPE: COMPETITIVE FIRM FIXED PRICE

KEY MILESTONES: RFP RELEASE -- JAN 97

CONTRACT AWARD -- JAN 98

ESTIMATED VALUE: $22M

POC NAME/PHONE: MS L. MURPHY / (908) 532-9728 ext 5822

CONTRACT OPPORTUNITY

TITLE: PM JTACS - HIGH CAPACITY TRUNK RADIO

OBJECTIVE: HIGH CAPACITY RADIO IN SUPPORT OF AREA COMMON USER SYSTEM (ACUS)

CONTRACT TYPE: COMPETITIVE FIRM FIXED PRICE

KEY MILESTONES: CONTRACT AWARD -- 2ND QTR FY00

ESTIMATED VALUE: $100M

POC NAME/PHONE: MR. SCHNABOLK / (908) 532-3525

CONTRACT OPPORTUNITY

TITLE: PM JTACS - FLY-AWAY MESSAGE SWITCH

OBJECTIVE: MESSAGE SWITCH FOR CONTINGENCY OPERATIONS

CONTRACT TYPE: COMPETITIVE FIRM FIXED PRICE

KEY MILESTONES: CONTRACT AWARD -- 2ND QTR FY96

ESTIMATED VALUE: N/A (CURRENTLY IN SOURCE SELECTION)

POC NAME/PHONE: MR. NUGENT / (908) 532-3525

CONTRACT OPPORTUNITY

TITLE:	PM JTACS - KEY MANAGEMENT SYSTEM SOFTWARE SUPPORT II
OBJECTIVE:	SOFTWARE SUPPORT FOR ARMY KEY MANAGEMENT SYSTEM PROGRAM
CONTRACT TYPE:	COMPETITIVE TIME AND MATERIAL
KEY MILESTONES:	CONTRACT AWARD -- 2ND QTR FY96
ESTIMATED VALUE:	N/A (CURRENTLY IN SOURCE SELECTION)
POC NAME/PHONE:	MR. SKRLETTS / (908) 532-3110

CONTRACT OPPORTUNITY

TITLE:	PM GPS - CARGO UTILITY GPS RECEIVER (CUGR)
OBJECTIVE:	LOW COST, NATIONAL AIR SPACE COMPLIANT RECEIVER FOR NON-MODERNIZATION AIRCRAFT
CONTRACT TYPE:	COMPETITIVE FIRM FIXED PRICE WITH 2 OPTIONS
KEY MILESTONES:	RELEASE SOLICITATION -- 2 JAN 96 BID SAMPLE TEST -- 1 APR 96 - MAY 96 CONTRACT AWARD -- 30 JUN 96
ESTIMATED VALUE:	COMPETITIVE SENSITIVE
POC NAME/PHONE:	MAJ GAGER / (908) 532-6304

CONTRACT OPPORTUNITY

TITLE: PM TRCS - SINCGARS PRODUCTION - FY97/97

OBJECTIVE: CONTINUE FULL RATE PRODUCTION OF GROUND RADIOS

CONTRACT TYPE: LIMITED COMPETITION FIRM FIXED PRICE TO ITT/GD

KEY MILESTONES: FIRST DELIVERY, JUNE 97

BEGIN FIELDING, AUG 97

ESTIMATED VALUE: $584M - QTY 66,000

POC NAME/PHONE: MR. J. MYSLINSKI / (908) 427-3008

DIGITAL RADIO LEXICON

- FDR: *FUTURE DIGITAL RADIO* -- ARMY'S OBJECTIVE TACTICAL HIGH CAPACITY DATA HAULER FOR 21st CENTURY -- MENS WRITTEN -- FUTURE SOLICITATION
- NTDR: *NEAR TERM DIGITAL RADIO* -- INTERIM NDI SOLUTION -- IN SOURCE SELECTION NOW -- LIMITED QUANTITIES FOR DIVISION XXI WITH OPTIONS FOR PRODUCTION -- OPEN ARCHITECTURE -- COULD EVOLVE TO MEET FDR REQUIREMENT
- SDR: *SURROGATE DIGITAL RADIO* -- RDEC INITIATIVE FOR TF XXI -- VERY LIMITED QUANTITIES (@ 20 TO 60) -- SOURCE SELECTION WITHIN 6 WEEKS -- WILL DEPLOY TO FT HOOD BY JUN 96 AND EMPLOY IN TF XXI BDE AWE FEB 97

CONTRACT OPPORTUNITY

TITLE: PM TRCS - NEAR TERM DIGITAL RADIO (NTDR)

OBJECTIVE: PROCURE AND TEST A LIMITED QUANTITY OF SYSTEMS AS A NEW PLATFORM FOR TACTICAL DATA TRANSMISSION

CONTRACT TYPE: COMPETITIVE COST PLUS FIXED FEE/TIME AND MATERIALS

KEY MILESTONES: FIRST DELIVERY, AUG 97

                            BEGIN TESTING, NOV 97

ESTIMATED VALUE: COMPETITIVE SENSITIVE

POC NAME/PHONE: MR. J. MYSLINSKI / (908) 427-3008

WRAP-UP

- MULTIPLE SOURCE SELECTIONS IN PROGRESS
- SEVERAL NEAR AND MID TERM CONTRACTUAL OPPORTUNITIES -- WATCH ELECTRONIC BULLETIN BOARD
- TECHNOLOGY INSERTION ORIENTATION -- KEEP GOOD IDEAS FLOWING -- WE'LL MODIFY ONGOING CONTRACTS
- TF XXI EXPERIENCE WILL DRIVE FUTURE ACQUISITION STRATEGY

DIGITIZATION OVERVIEW BRIEFING

ADPA C⁴I APBI

28 November 1995

apbl1128(23 0900 Nov95)cvr-1

DIGITIZATION

Army Digitization Office

> Digitizing the Battlefield is the application of information technologies to acquire, exchange, and employ timely digital information throughout the battlespace, tailored to the needs of each decider (commander), shooter, and supporter...allowing each to maintain a clear and accurate vision of his battlespace necessary to support both planning and execution.

SHARED VIEW OF BATTLE

RELIABLE SYSTEMS, EASILY UPGRADABLE
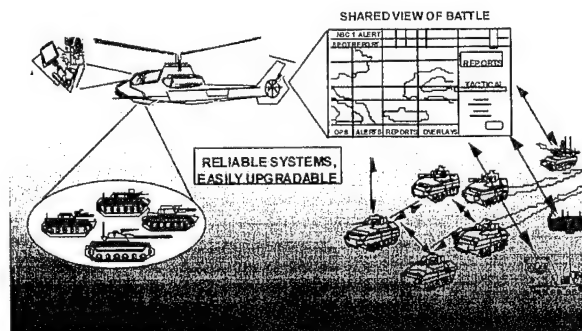
☆ *Lethality*

☆ *Survivability*

☆ *OPTEMPO*

FROM STRATEGIC/SUSTAINING BASE ASSETS TO THE TACTICAL LEVEL

WITHIN THE ARMY AND WITHIN JOINT / COMBINED OPERATIONS

apbl1128(23 0900 Nov95)cvr-1

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ADO CAMPAIGN PLAN

Army Digitization Office

Architectures:
- Technical
- Operational
- System

Interoperability
- Throughout Global Command and Control System (GCCS)
- Joint / Multinational

Architectures XXXX

FORCE XXI

Tactical Internet

Acquisition

Integration of Battlefield Systems

Battlefield Information Transmission System

XXXX Architectures

LD	PL	PL	PL
NTC 94-07	TF XXI AWE (Jun 96-Feb 97)	DIV XXI AWE (Nov 97)	Corps XXI AWE (3QFY98)

Experimentation & Evaluation
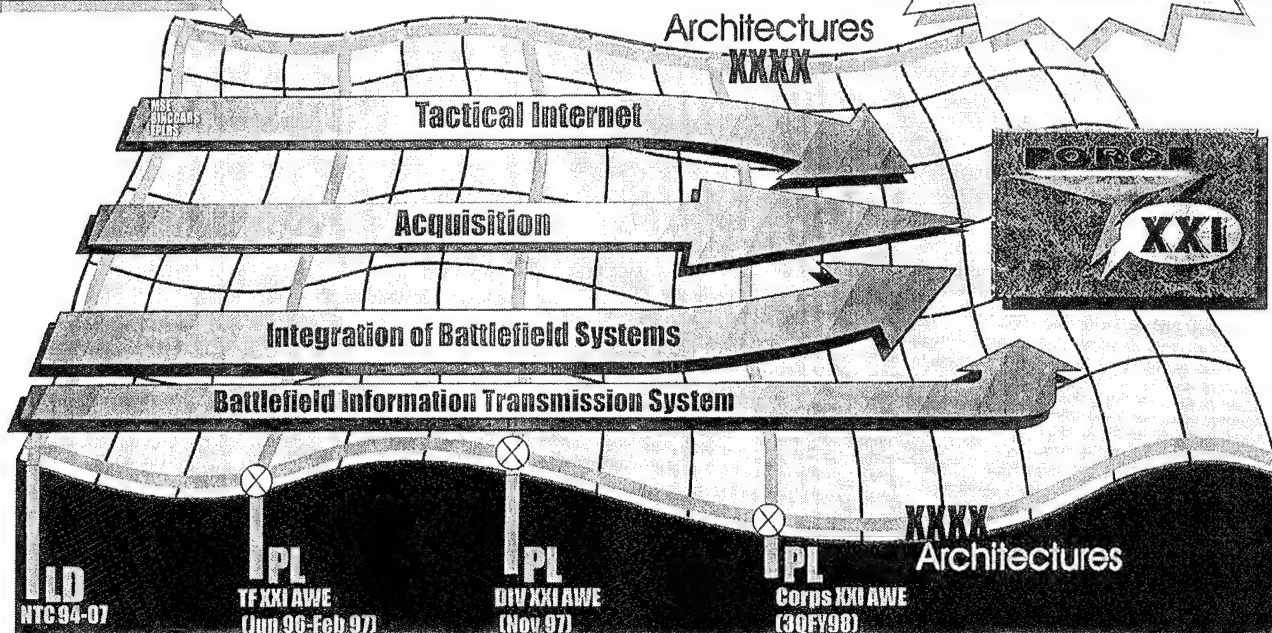
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Architectures for Force XXI

Army Digitization Office

Operational Architecture (OA)

Wingman — PLT — CO CDR

Call for Fire

CO FIST — TF FSE — BDE FSE

Howitzer Sec — BTY FDC — BN FDC

BATTLEFIELD PROCESSES

Missions/Relationships
- TRADOC Product
- TF XXI OA - Apr 96

System Architecture (SA)

Host — INC — S | S — ELPRS

PHYSICAL LAYOUT

COMMS/Computers
- PEO C3S Product
- Responsible for all systems fielded to EXFOR
- TF XXI baseline 1 Feb 96

The Building Code
- AAE Product
- Used *now* for all RFPs
- Migration plans submitted by PEOs - July 95
  - ASEO comments provided to PEOs 29 Aug 95
  - 102 revised and new Migration Plans received

STANDARDS

Technical Architecture (TA)

VMF CFI K96.66

COE

Information Standards
Version 3.1
31 March 1995
Version 4.x
Dec 95

Information Processing Profile

Data Transport Profile

Human Computer Interface Standard

11/22/95 10:26 AM

34

Army Technical Architecture (ATA)

➢ DISC4 Lead on ATA Development

➢ Release of Version 4.0 Planned for 31 Dec 95

➢ Purpose: ATA Maintenance and Expansion

 – Resolve Previous Comments

 – Joint Linkages
 - DoD TAFIM 3.0
 - GCCS COE for C3I
 - Architecture Methodology Working Group (AMWG)

 – Expansion: Embedded/Weapon Systems, Distributed Simulation, Tactical Data Links, Security, Sustaining Base, Office Automation, GPS, Imagery, etc.

➢ Draft Version Review and Input via the Internet

AMWG (All Services)

Common Products & Definitions

apbl1128(23 0900 Nov95)cvr-4

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C4I Technical Architecture Migration Plan Procedure

UK and US Navy are planning to adopt most of the TA

C4I TA

- Published 31 Mar 95
- Requires Compliance- mandated by AAE
- Migration Plans towards compliance required from PEOs, AMC PMs, & ATD Mgrs
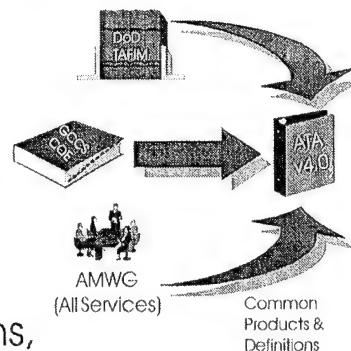
ATA

- Army TA to be published Dec 95
- Incorporates Weapon System Technical Architecture(WSTA), ...

Revised Plans

PEOs, PMs PDSS AMC PMS ACTD/ATDs

Initial Submission

ASEO Review of Migration Plans

TBD

ASEO Recommends ADO Acceptance of Migration Plans

Plans identify actions for TA compliance
- Resources
- Schedule
- Requirements
- Program change

Detailed comments sent back to PEOs

STATUS:
- 55 Plans submitted by Aug 95
- Return to PEOs Oct 95
- 102 currently in review process

Iterative Process

AAE decision for implementation   Date TBD

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11/22/95 10:26 AM

VARIABLE MESSAGE FORMAT (VMF)

Army Digitization Office

- Army proposal consists of 51 bit-oriented VMF messages to support information exchange requirements over CNR

- Working with DISA to expedite Joint Approval timeline

  – Monthly meetings of technical working group intended to reduce overall timeline below the nominal 2 years

  – Approval process experiencing delays for some messages
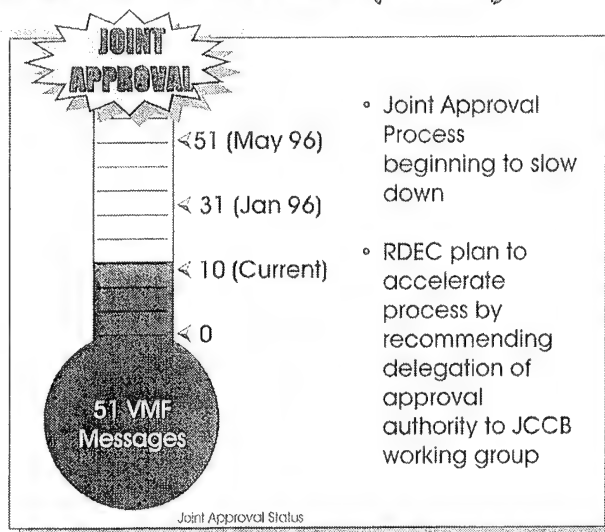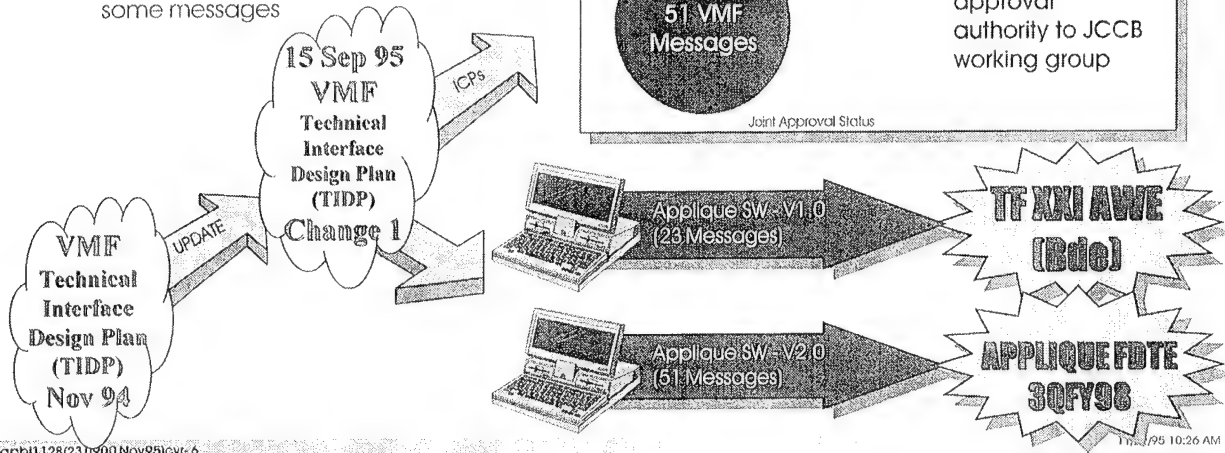
JOINT APPROVAL

◁ 51 (May 96)

◁ 31 (Jan 96)

◁ 10 (Current)

◁ 0

51 VMF Messages

Joint Approval Status

- Joint Approval Process beginning to slow down

- RDEC plan to accelerate process by recommending delegation of approval authority to JCCB working group
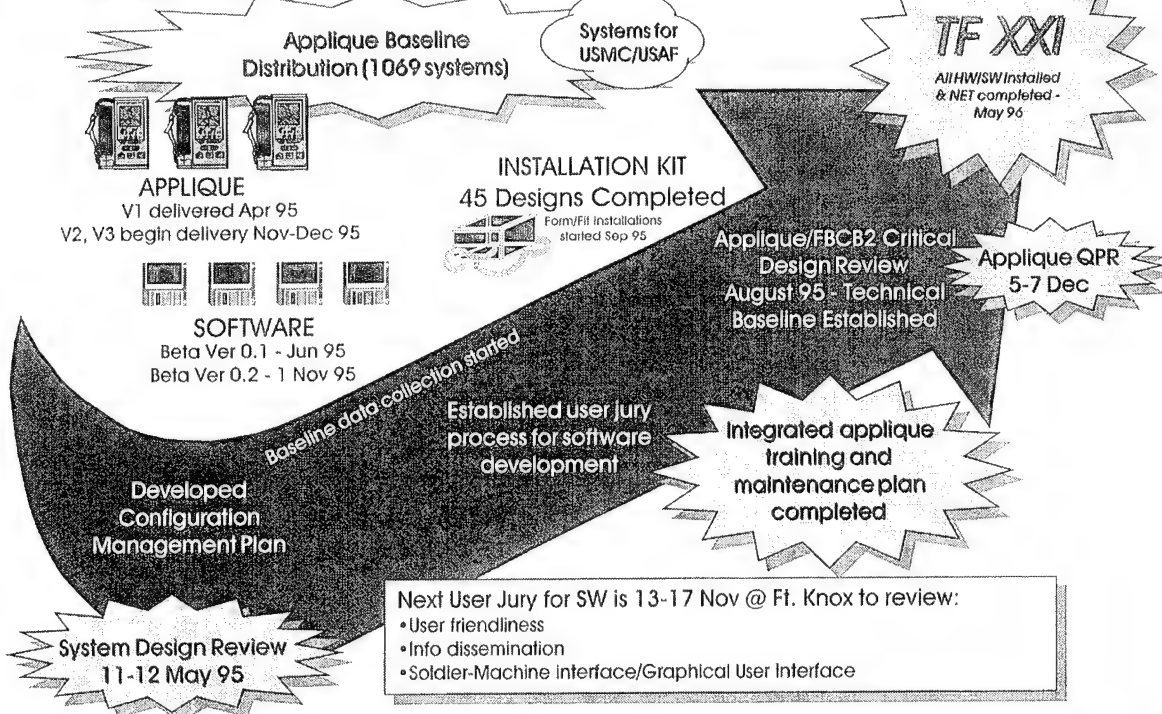
15 Sep 95 VMF Technical Interface Design Plan (TIDP) Change 1

ICPs

UPDATE

VMF Technical Interface Design Plan (TIDP) Nov 94

Applique SW - V1.0 (23 Messages) → **TF XXI AWE (Bde)**

Applique SW - V2.0 (51 Messages) → **APPLIQUE FDTE 3QFY96**

apbi1128(23 0900 Nov95)cvr-6

11/22/95 10:26 AM

TF XXI AWE Update

Army Digitization Office

Applique Baseline Distribution (1069 systems)

Systems for USMC/USAF

TF XXI
All HW/SW Installed & NET completed - May 96

APPLIQUE
V1 delivered Apr 95
V2, V3 begin delivery Nov-Dec 95

INSTALLATION KIT
45 Designs Completed
Form/Fit Installations started Sep 95

Applique/FBCB2 Critical Design Review August 95 - Technical Baseline Established

Applique QPR 5-7 Dec

SOFTWARE
Beta Ver 0.1 - Jun 95
Beta Ver 0.2 - 1 Nov 95

Baseline data collection started

Established user jury process for software development

Integrated applique training and maintenance plan completed

Developed Configuration Management Plan

System Design Review 11-12 May 95

Next User Jury for SW is 13-17 Nov @ Ft. Knox to review:
- User friendliness
- Info dissemination
- Soldier-Machine interface/Graphical User Interface

apbi1128(23 0900 Nov95)cvr-7

11/22/95 10:26 AM

➤All major Force Modernization initiatives on schedule

–M1A1 Heavy Commons transfer to TF XXI complete

–M2A2/M3A2 fielding to TF XXI complete

–PLGR fielding to EXFOR complete

–Paladin fielding to TF XXI complete

–CSSCS - provided to TF XXI

–FAADC2 - fielding to TF XXI 4 Mar - 3 May 96

–ASAS - fielding to TF XXI 1 Mar 96

–MCS/Phoenix - fielding to TF XXI 1 Apr - 30 May 96

–AFATDS - fielding to TF XXI 29 Jan - 29 Mar 96

–OH-58D - fielding started Oct 95
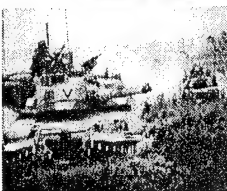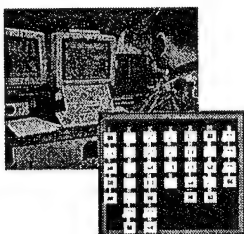
–C2V - fielding to TF XXI 1 May - 1 Jul 96

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11/22/95 10:26 AM

Focused Dispatch AWE
Army Digitization Office

• Heavy Bn TF (MBBL) AWE: Dec 94 thru field exercise in Aug 95

• Changes in organization as a result of digitization

• Constructive, virtual, and live simulations

FOCUS ON:
• Battle Command
• Fire Support
• Intelligence
• CSS

• Status: JANUS constructive simulations complete; Live-Virtual now complete; 1100 personnel played from four locations: Knox, Greenville, Bliss, Rucker; providing excellent digitization insights. Collected instrumented and subjective data. Analysis underway.

• Emerging results: Focused Dispatch a success
  –Dedicated trainup for six months
  –Architecture stable
  –Experimental mission, not focused on CTC rotation
  –Met realistic expectations
  –TTP will feed TF XXI AWE

BOTTOM LINE: Applied lessons learned from NTC 94-07

Focused Dispatch Objectives:

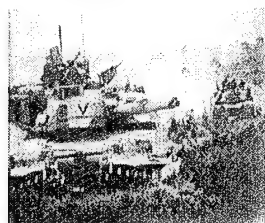| Experiment with changes in Doctrine, TTP, and Structure.	Insights on means to increase lethality, survivability, & tempo of mounted TF	Gain insights into DTLOMS	Refine digital information requirements; maximize connectivity between CBT, CS, & CSS

apbi1128(23 0900 Nov95)cvr-9

11/22/95 10:26 AM

Warrior Focus AWE

- Lt Inf Bde TF AWE at Ft Drum/JRTC (May 95 thru Nov 95 JRTC event)
- Dismounted soldier baseline established with digitization and Own the Night
- Digital TOC connectivity from Div to Company (No DSSUs); parallel plt experiment to soldier level in CPX Bn.
- Emerging results: Warrior Focus a success for OTN and Digitization
  - Conceptually great potential, but some immature technologies
  - Situation Awareness (two levels down) enhances decision making, tempo, survivability, and battle tracking
  - Split based intel could mean no more IPB templating for S2
  - Must make large screen, high resolution digital map work; can't afford dual system
  - Tremendous potential for CSS - anticipatory logistics provides faster supplies, medical treatment, and personnel replacements
  - Must emphasize dissemination of critical information vice volume; implement message prioritization and acknowledgment

TF included Tank Team, SOF, and Rangers

apbl1128(23 0900 Nov95)cvr-10

11/22/95 10:26 AM

Simplified Brigade Task Force Tactical Internet

- Based on EPLRS data radio backbone
- Each EPLRS equipped platform participates in CSMA broadcast needline
- Each host connected to EPLRS can serve as SA position server
- Inter-CSMA SA distribution provided by MSG needline (up to 16 transmitters)

CSMA - Carrier Sense Multiple Access

MSG - Multi-Source Group

NCS -- Net Control Station

SA -- Situation Awareness
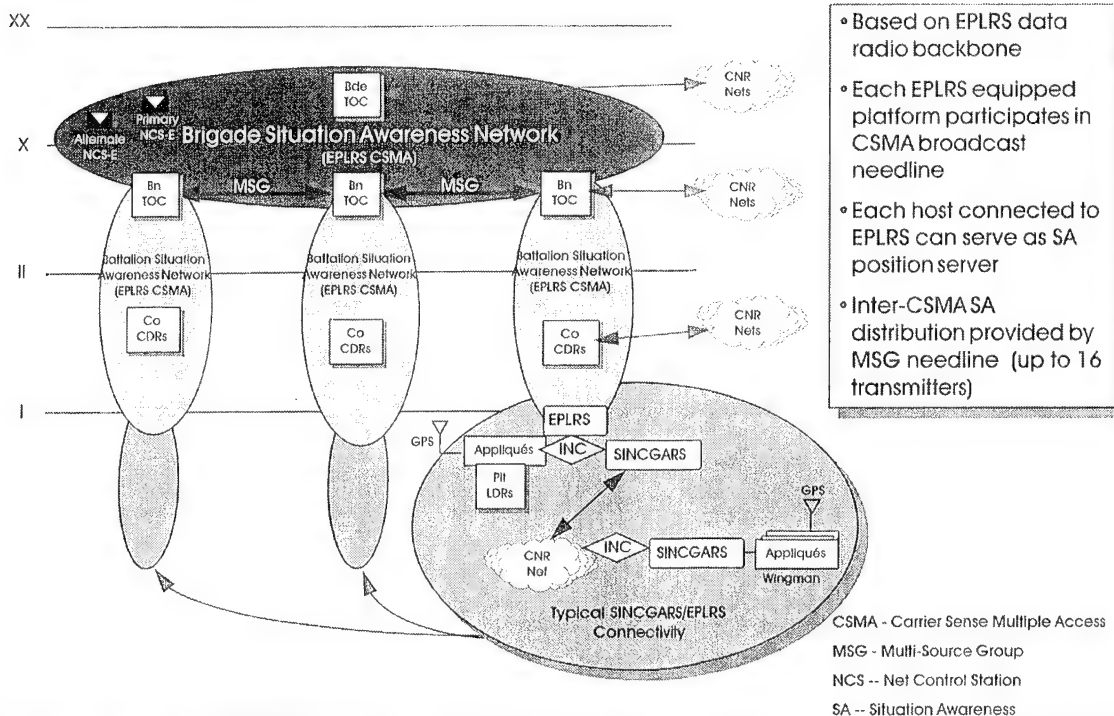
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Tactical Internet Integration Testing and Risk Reduction

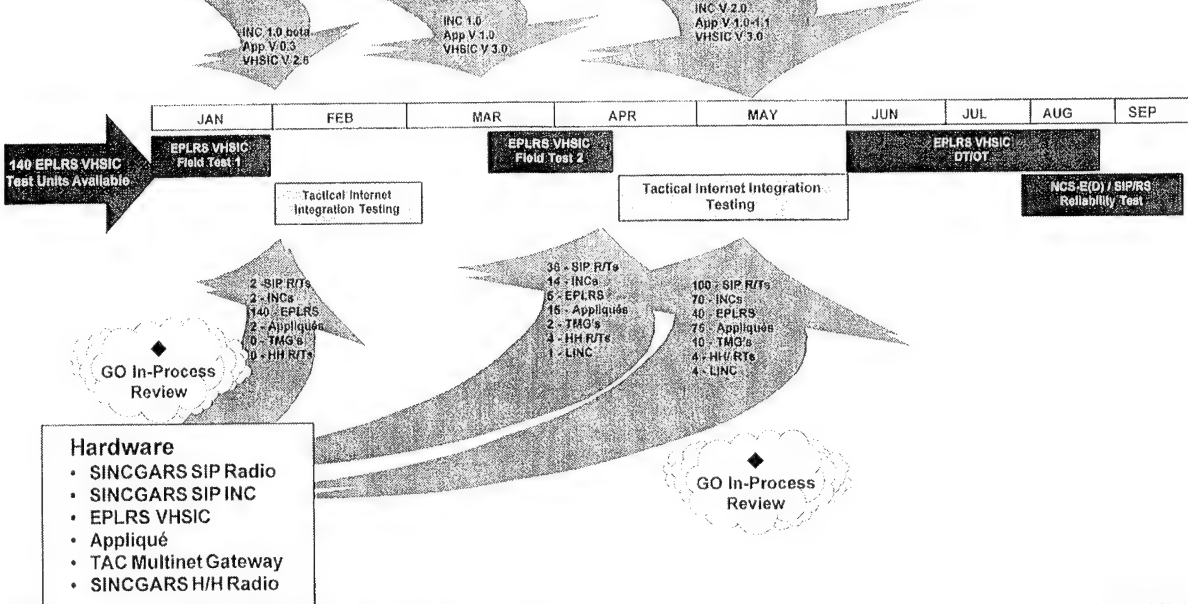**Army Digitization Office**

Software/Firmware
- SINCGARS SIP INC
- Appliqué
- EPLRS VHSIC

Exploits on-going EPLRS Field Tests

INC 1.0 beta
App V.0.3
VHSIC V 2.5

INC 1.0
App V 1.0
VHSIC V 3.0

INC V 2.0
App V 1.0-1.1
VHSIC V 3.0

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP

140 EPLRS VHSIC Test Units Available

EPLRS VHSIC Field Test 1

EPLRS VHSIC Field Test 2

EPLRS VHSIC DT/OT

NCS-E(D) / SIP/RS Reliability Test

Tactical Internet Integration Testing

Tactical Internet Integration Testing

2 - SIP R/Ts
2 - INCs
140 - EPLRS
2 - Appliqués
0 - TMG's
0 - HH R/Ts

36 - SIP R/Ts
14 - INCs
6 - EPLRS
15 - Appliqués
2 - TMG's
4 - HH R/Ts
1 - LINC

100 - SIP R/Ts
70 - INCs
40 - EPLRS
75 - Appliqués
10 - TMG's
4 - HH R/Ts
4 - LINC

◆ GO In-Process Review

◆ GO In-Process Review

Hardware
- SINCGARS SIP Radio
- SINCGARS SIP INC
- EPLRS VHSIC
- Appliqué
- TAC Multinet Gateway
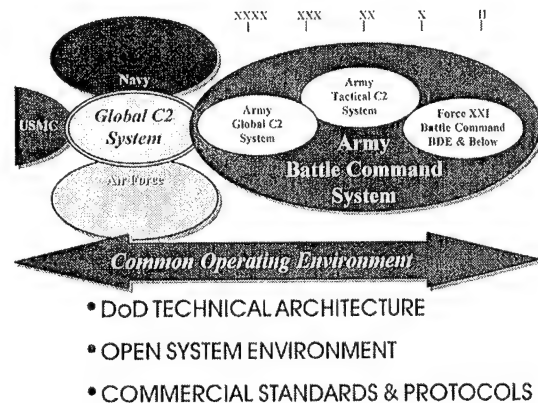- SINCGARS H/H Radio

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System Integration
Command & Control

Army Digitization Office

➢ _Army Global Command & Control System (AGCCS)_ : 1st Delivery: DEC 95

➢ _Army Tactical Command & Control System (ATCCS)_ : All systems to 2AD by MAY 96

➢ _Force XXI Battle Command Brigade & Below (FBCB2)_ :
   – Version 1.0 Fielding   MAR 96

XXXX XXX XX X II

Navy
USMC
Global C2 System
Air Force

Army Global C2 System
Army Tactical C2 System
Force XXI Battle Command BDE & Below
Army Battle Command System

Common Operating Environment

- DoD TECHNICAL ARCHITECTURE
- OPEN SYSTEM ENVIRONMENT
- COMMERCIAL STANDARDS & PROTOCOLS

apbl1128(230900Nov95)cvr-14

11/28/95 7:37 AM

39

➢ A key digitization goal has been to develop Force Battle Command Brigade and Below (FBCB2) Software for Appliques _and_ embedded systems

➢ M1A2 SEP is the 1st embedded system to integrate FBCB2 software. M2A3 also plans to reuse FBCB2.

➢ PEO-C3S and PEO-ASM have agreed to a strategy to reuse FBCB2 in the Abrams and Bradley Programs

- Top Level C2 functional envelope defined

- Details will be worked in the next 60 days

- Platform PMs will be responsible for man-machine interface and C2 module integration

- PEO-C3S will provide configuration management of the C2 module for _all_ platforms
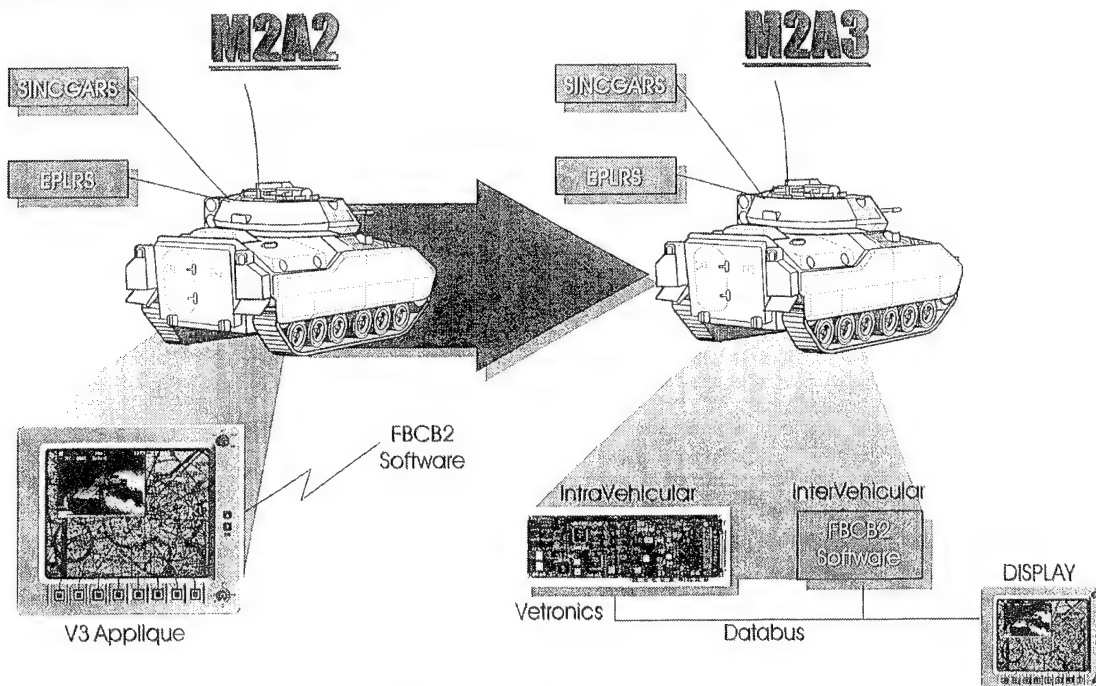
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11/22/95 10:26 AM

SW REUSE FOR EMBEDDED SYSTEMS
M2 Bradley example:

Army Digitization Office

apbl1128(23 0900 Nov95)cvr-16

11/22/95 10:26 AM

Battlefield Information Transmission System (BITS)

BITS Strategy Approved - May 95

EXPERIMENTS

Mobile Subscriber
Radio-Telephone
Terminal

➢ **TF XXI**
- Tactical End to End Encryption
- Terrestrial Personal Communication System
- Asynchronous Transfer Mode (ATM) over MSE
- Direct Broadcast Satellite

➢ **DIV XXI**
- Near Term Digital Radio
- High Capacity Airborne Relay
- High Capacity Trunk Radio
- Satellite Personal Communications

High Capacity
Trunk Radios

Commercial
Cellular
Voice/Data

➢ **CORPS XXI**
- On-the-Move SATCOM Antenna
- ATM - Combat Net Radio Access Point

Radio
Access
Point

MORE PIPES FOR CDR's NEEDS
- INCREASED DATA CAPACITY
- SIZE REDUCTION
- MULTI-MODE CAPABILITY
- EXPLORATION OF COMMERCIAL TECHNOLOGY

apbi1128(23 0900 Nov95)cvr-17

11/28/95 7:45 AM

JOINT INTEROPERABILITY

➢MOAs w/ All Services

➢Joint Battlefield Digitization Council of Colonels/Captains
Interoperability/Issues/Concerns - Six Working Groups

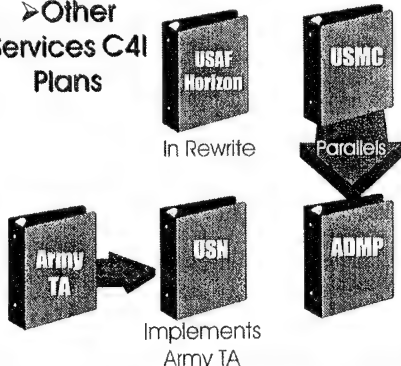Service Participation in TF XXI

ACTD

Training

Evaluation & Assessment

Migration to GCCS COE

Commo/Data links

➢**Other Services C4I Plans**

USAF Horizon — In Rewrite

USMC — Parallels

Army TA → USN — Implements Army TA

ADMP

➢**TF XXI Participation**
- USMC - "Sea Dragon" MAGTF (Special)
- Air Force - SADL/Speakeasy

➢ASD(C3I) completed Joint Battlefield Digitization review.
➢Briefed to MCEB - Dec Mtg
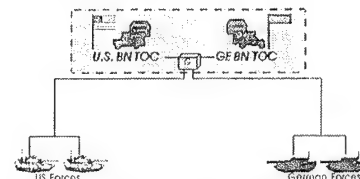
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11/22/95 10:26 AM

> International C2 Systems Interoperability Program (IC2SIP)
>> – Nunn funding issue: IC2SIP #1 on Army funding list
>> – Sub-groups working issues (Doctrinal development - Ft. Knox 6-9 Nov 95, message templates - CECOM)
>> – Continuing MOU negotiations w/ France
> UK Digitization office established 1 Nov 95
> Army Tactical C2 Information System (ATCCIS)
>> – Database-to-Database demo w/ UK, FR, GE, DK, SP, NL: 14-16 Nov 95 in NL
> International Digitization Strategy
>> – Revision of 1995 publication, Parallels ADMP
> Development of MOU at Senior National Rep (A)[GE, US, FR, UK]
>> – Brings digitization to Quadrilateral Army Communications and Information Systems Interoperability Group (QACISIG)
>> – "Digitization" direction to other NATO fora/countries
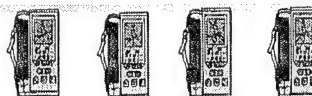
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11/22/95 10:26 AM

Appliques — 1069 Installed in EXFOR May 96

Installation Kits — Same as Applique

Software — V 1.0 MAR 96

Embedded Systems — M1A2 SEP FUE - FY99, AH-64D FUE - FY97, M2A3 FUE - FY00 — Upgrades Ongoing
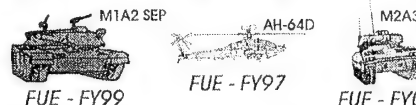
Tactical Internet — In Place MAY 96 — Multiple Subscriber Equipment/Tactical Packet Network (TMG), Enhanced Position Location & Reporting System (INC), Single Channel Ground & Air Radio System
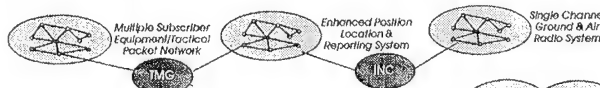
Battlefield Information Transmission System (BITS) — Cellular, Future Digital Radio, Direct Broadcast Satellite — Advanced Technology Demonstrations (ATDs), Advanced Concept Technology Demonstrations (ACTDs), AWEs, Lead to Acquisition Strategy by FY99
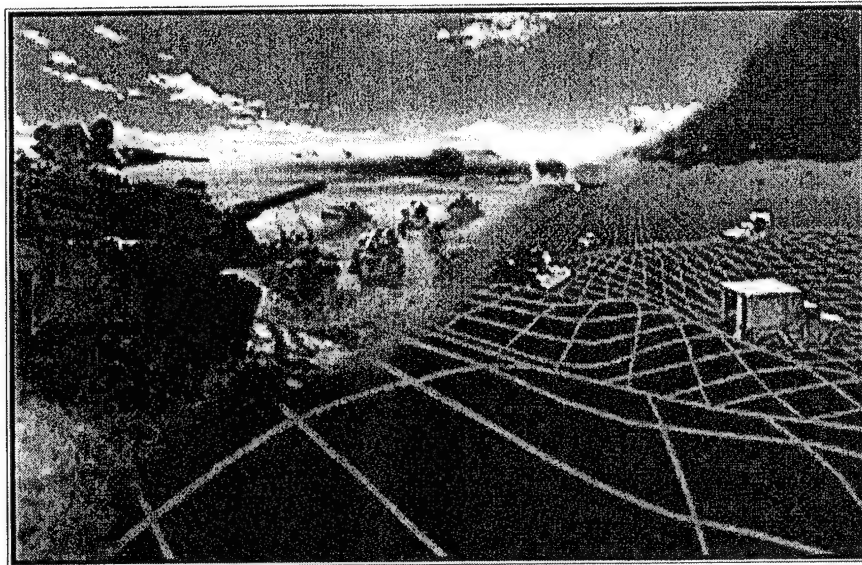
apbi1128(23 0900 Nov95)cvr-20

First on the Digital Battlefield

apbl1128(23 0900 Nov95)cvr-21

11/22/95 10:26 AM

Future Information Technologies
for the XXI Century
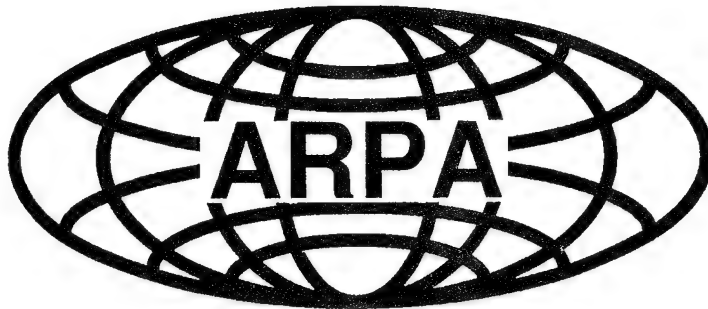
ARPA Approach to Program Selection

Military Pull	Technology Push
• 20 year vision of military capability	• Invest in areas of potential high payoff
• Apply current technology (e.g.: ACTDs)	• Exploit technology for military capabilities
• Define technology deficiencies for 20 year vision	• Focus on long-term technology development
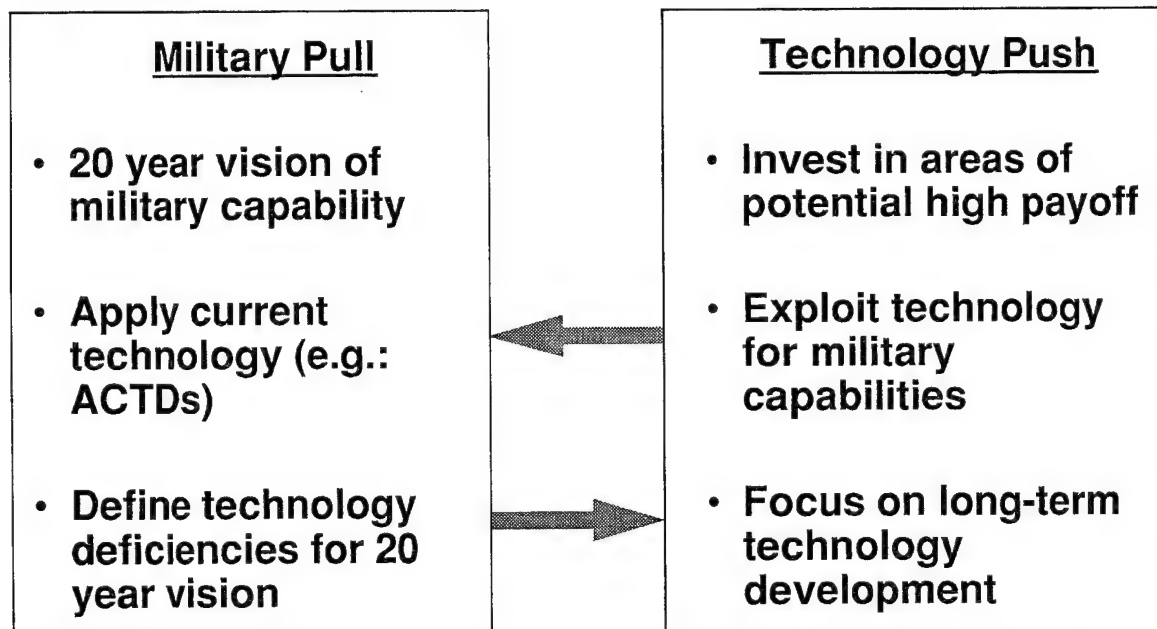
Six of ARPAs Top Ten Priorities

- Comprehensive battlefield awareness

- Near-real-time C3, planning and replanning

- Simulation for "continuous war" environment (innovation, interoperability)

- Technology for robust, massive and mobile battlefield networks

- Survivability of our information systems

- Microelectronics for smaller, lighter, more mobile information systems
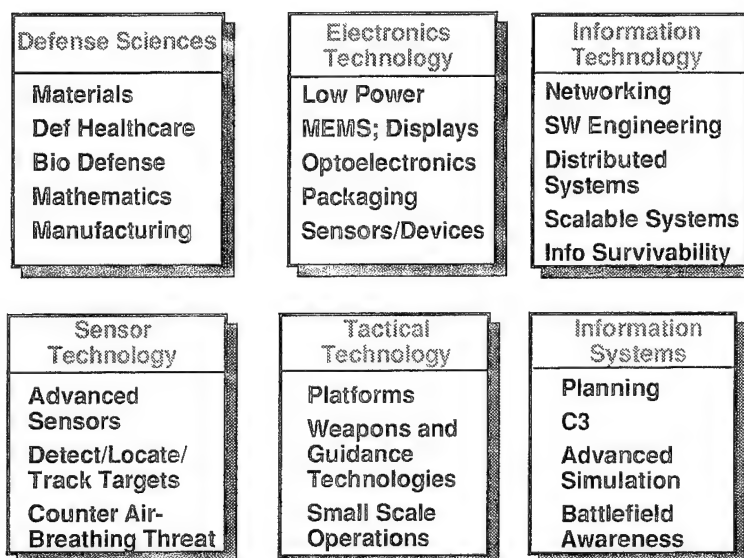
11/28/95 DISC4

ARPA Technical Organization

Defense Sciences	Electronics Technology	Information Technology
Materials	Low Power	Networking
Def Healthcare	MEMS; Displays	SW Engineering
Bio Defense	Optoelectronics	Distributed Systems
Mathematics	Packaging	Scalable Systems
Manufacturing	Sensors/Devices	Info Survivability

Sensor Technology	Tactical Technology	Information Systems
Advanced Sensors	Platforms	Planning
Detect/Locate/ Track Targets	Weapons and Guidance Technologies	C3
Counter Air- Breathing Threat	Small Scale Operations	Advanced Simulation
		Battlefield Awareness

11/28/95 DISC4

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Battlefield Dominance

Comprehensive Awareness

Dynamic Sensor Management

Data Collection (sensors, platforms)

Backbone Comm and Shared Data Bases

Tier-II+

BADD

SAIP

Data Dissemination

Data Exploitation (filters, analysis)

Imagery Data Collection and HAE UAVs

- Warfighter stated requirement for MRC
    - 40,000 sq. n. mi./day at 1' resolution
    - Based on expectation that retasking time is days
- Alternate approaches:
    - Collect at this high rate but process at lower resolution for screening and then at higher when requested
    - Collect at lower resolution but with real time retasking for higher resolution
- The U-2 ASARS and HAE UAVs approximate these rates
- HAE UAVs are instantly retaskable

Data Exploitation and SAIP

- 40,000 sq. n. mi./day at 1' resolution ----->
    - Assume IA can deal with million pixel screen in 2 mins
    - Takes 2000 IAs working around the clock

- Probably not the right approach !!

- Can't process completely automatically today, but lots of progress in
    - Automatic Target Recognition (ATR)
    - Image understanding
    - Pattern recognition techniques

- SAIP will apply today's capabilities to increase IA productivity by factor expected to be 100-1000

Data Dissemination and BADD

- Given that we can exploit all the data (SAIP), how do we disseminate it

- Commanders know that they want information rather than data and access across the forces

- But there is no adequate definition of who needs what and how

- BADD designed to enable the JTF commander to design the system himself by
  - Field experimentation
  - Tools to provide filters, querries, etc
  - Access to massive, probably distributed, archives
  - Experimental definition of access, form
    - » data, annotated data, extracted information, high level overviews, etc
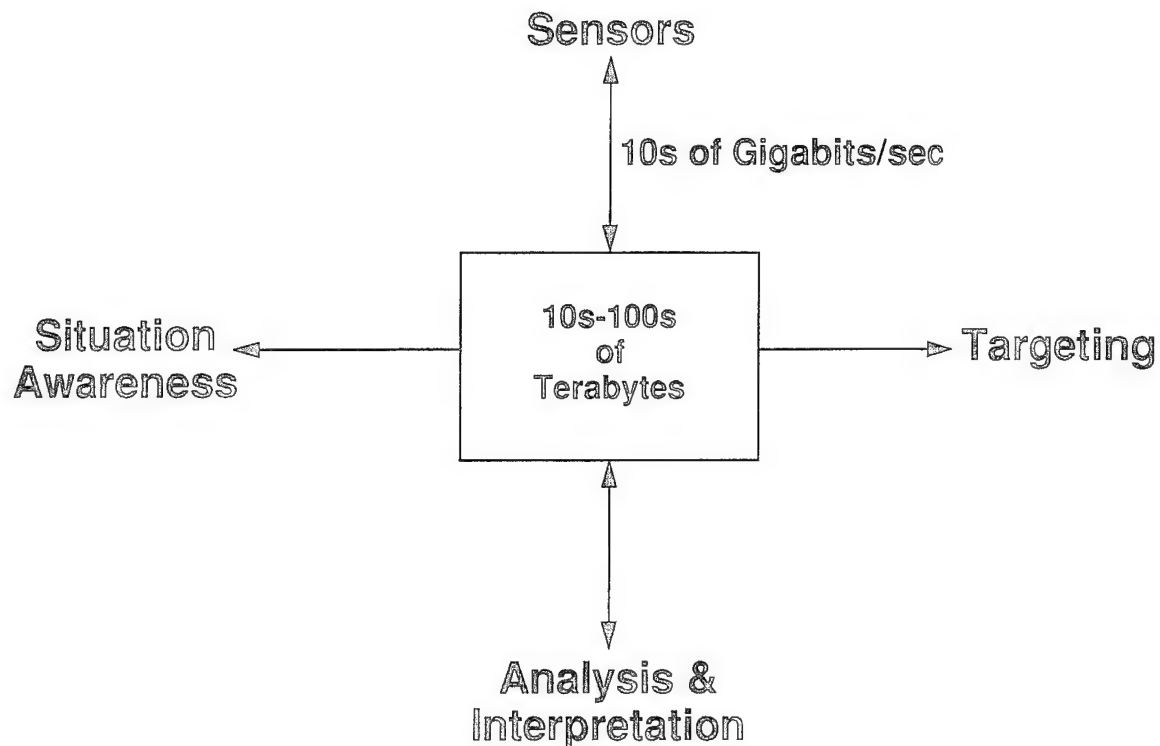 - Generally and then dynamically while in use

11/28/95 DISC4

Dynamic Sensor Management

- Given adequate first step solutions to Collection, Exploitation and Dissemination in near real time
  - Immediately retask the sensors for a closed loop

- Automated Sensor Management is then next step

11/28/95 DISC4

Shared Geographic Oriented Data Base

Sensors

↕ 10s of Gigabits/sec

Situation Awareness ← | 10s-100s of Terabytes | → Targeting

↕

Analysis & Interpretation

Comprehensive Awareness

Dynamic Sensor Management

Data Collection (sensors, platforms)

Backbone Comm and Shared Data Bases

Tier-II+

BADD

SAIP

Data Dissemination

Data Exploitation (filters, analysis)
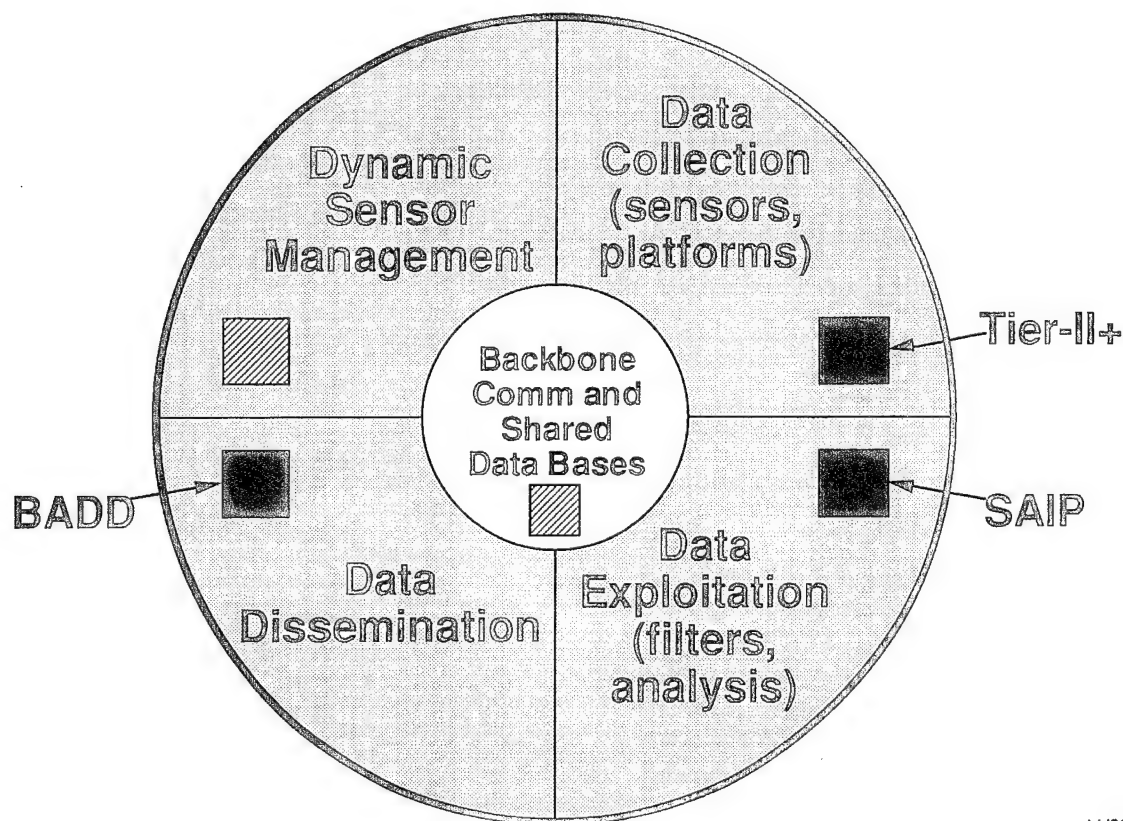
Planning and C3

- **Populate with applications for all needs**

- **GCCS Leading Edge (CORBA)**

JTF Commander C3

AJP

Air Campaign Planning & Execution

Backbone Comm and Shared Data Bases

JFACC

Logistics

TAV
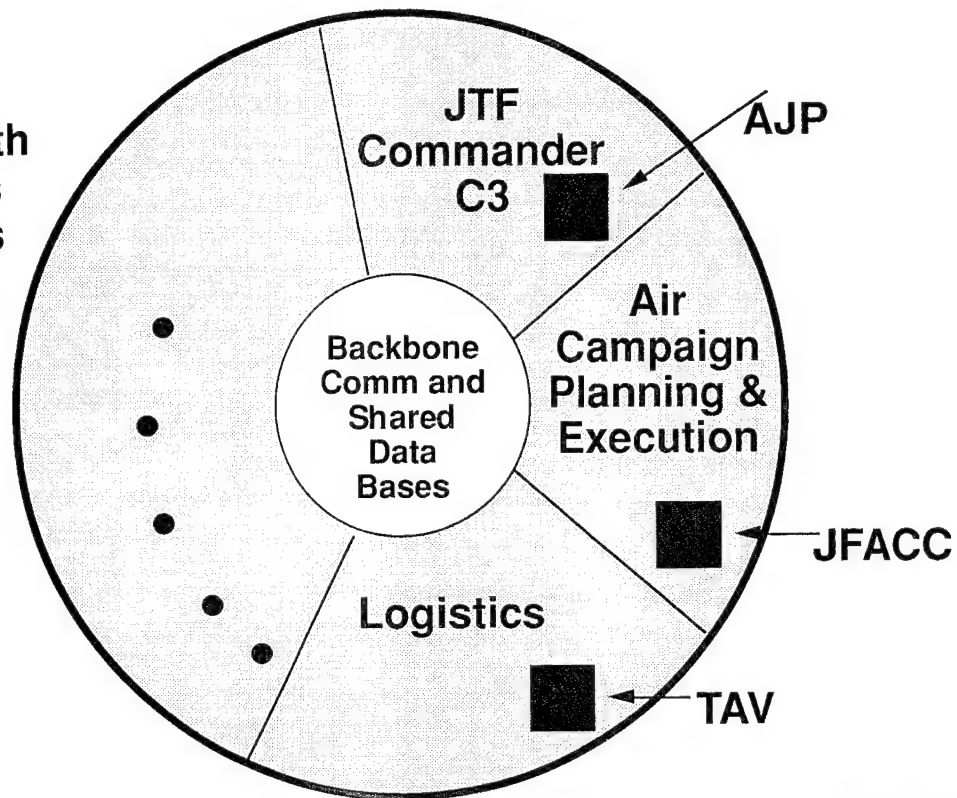
11/28/95 DISC4

Conclusion

- **Information is where major military advances will occur**

- **Timelines are critical**
    - **Others will copy us in approaches and systems**
    - **We should be able to stay ahead in cycle time for some time to come**

- **Communications should not limit**

- **Information handling is where it's at !!!**

11/28/95 DISC4

Advance Planning Briefing for Industry

Major General David J. Kelley
Vice Director, DISA
28 Nov 95

Agenda

- **The Goal**

- **DISA's Core Missions**

- **Electronic Commerce / Electronic Data Interchange (EC/EDI)**

- **Information Warfare & Security**

- **DISA Contract Opportunities & Sources**

- **Summary**

Command, Control, Communications & Computers (C4I) For The Warrior

What the Warrior Needs

The Warrior needs a fused, real-time, true picture of the battlespace and the ability to order, respond, and coordinate vertically and horizontally to prosecute the mission in that battlespace.
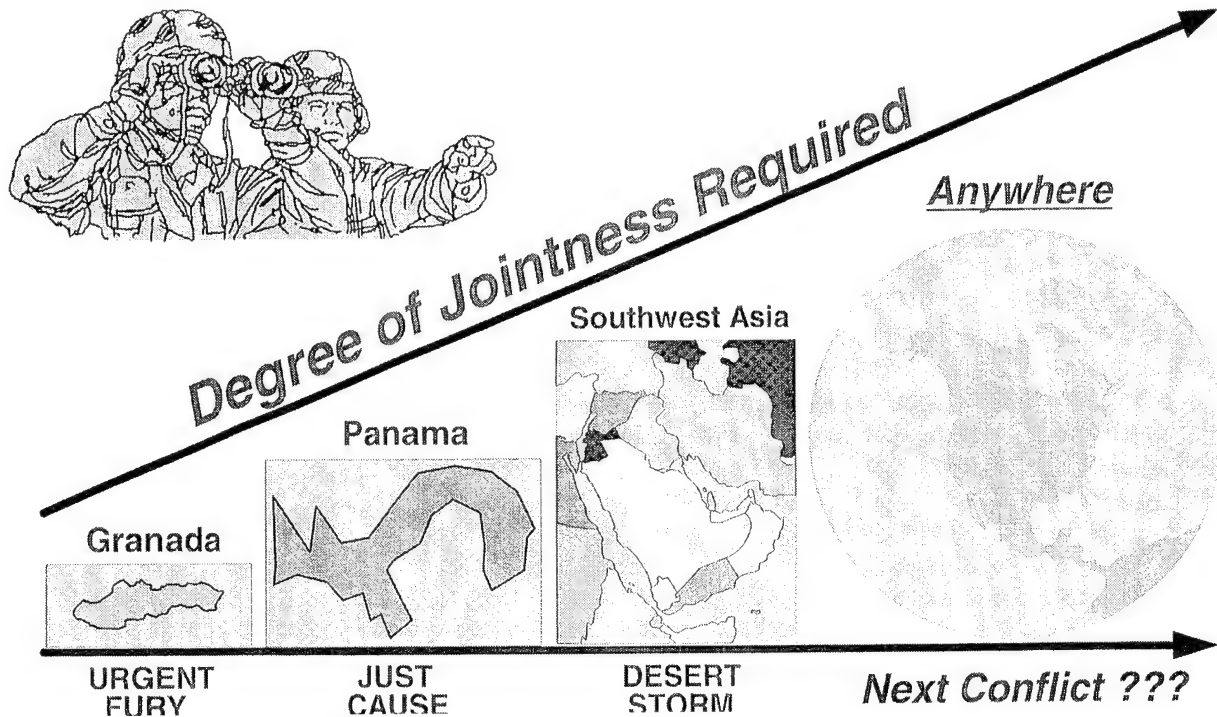
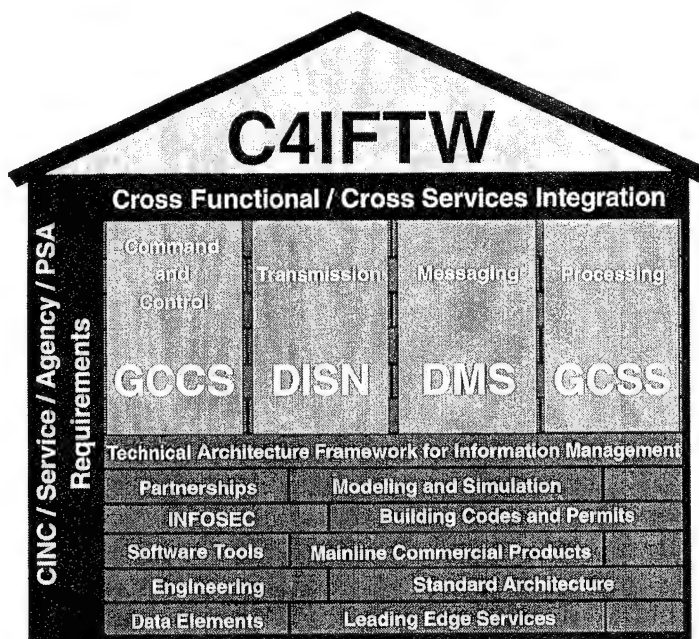# Support to the Warfighter is Job One!

The Goal: *Jointness*

Degree of Jointness Required

Granada

URGENT
FURY

Panama

JUST
CAUSE

Southwest Asia

DESERT
STORM

Anywhere

Next Conflict ???

DISA Core Missions

Under Construction

C4IFTW

Cross Functional / Cross Services Integration

CINC / Service / Agency / PSA Requirements

Command and Control	Transmission	Messaging	Processing
GCCS	DISN	DMS	GCSS

Technical Architecture Framework for Information Management

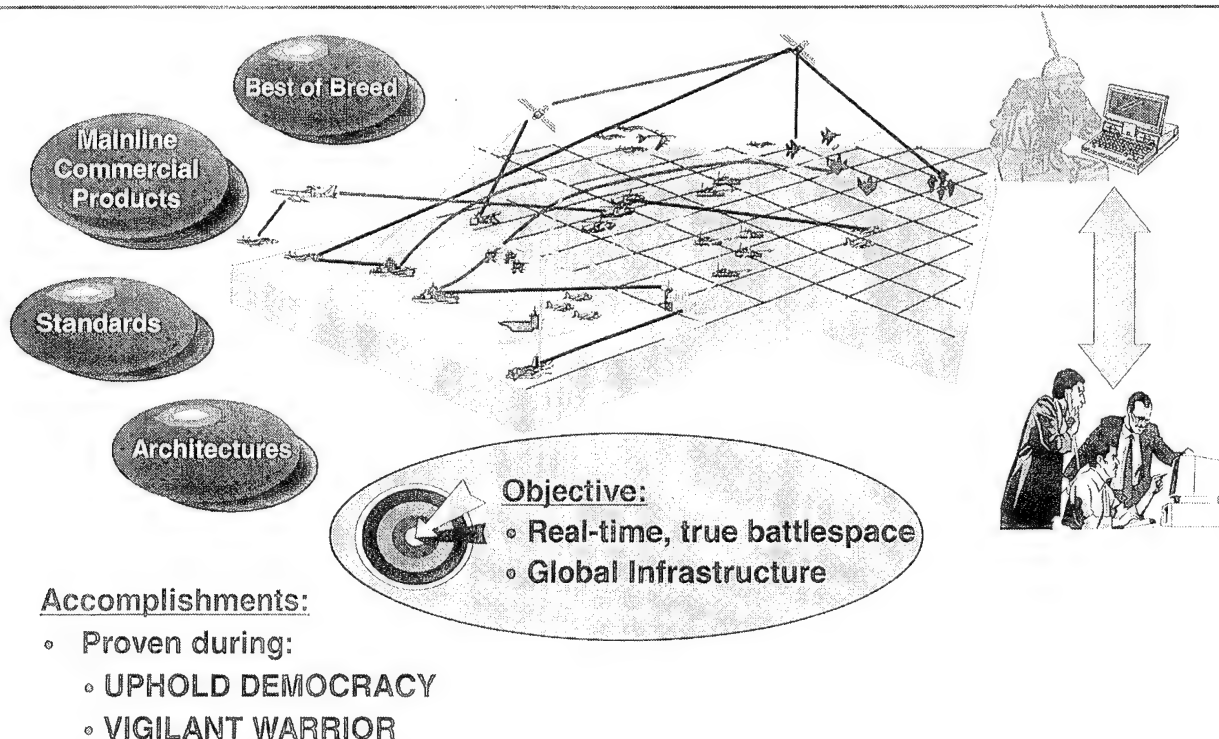| Partnerships	Modeling and Simulation
INFOSEC	Building Codes and Permits
Software Tools	Mainline Commercial Products
Engineering	Standard Architecture
Data Elements	Leading Edge Services

COE
CDE
STDs

DISA: ARCHITECT OF THE FUTURE

Global Command & Control System (GCCS)

- GCCS will improve the warfighter's ability to manage and execute crisis and contingency operations
  - It provides the seamless, integrated capability to get information to the warfighter when, where, and how it is needed
  - When fully implemented, GCCS will be the realization of the C4I for the Warrior (C4IFTW) concept, providing a fused, real-time, true picture of the battlespace.

DISA is responsible for the GCCS Architecture and Engineering, Integration, Configuration Management and Fielding.

GCCS

Best of Breed

Mainline Commercial Products

Standards

Architectures

Objective:
- Real-time, true battlespace
- Global Infrastructure

Accomplishments:
- Proven during:
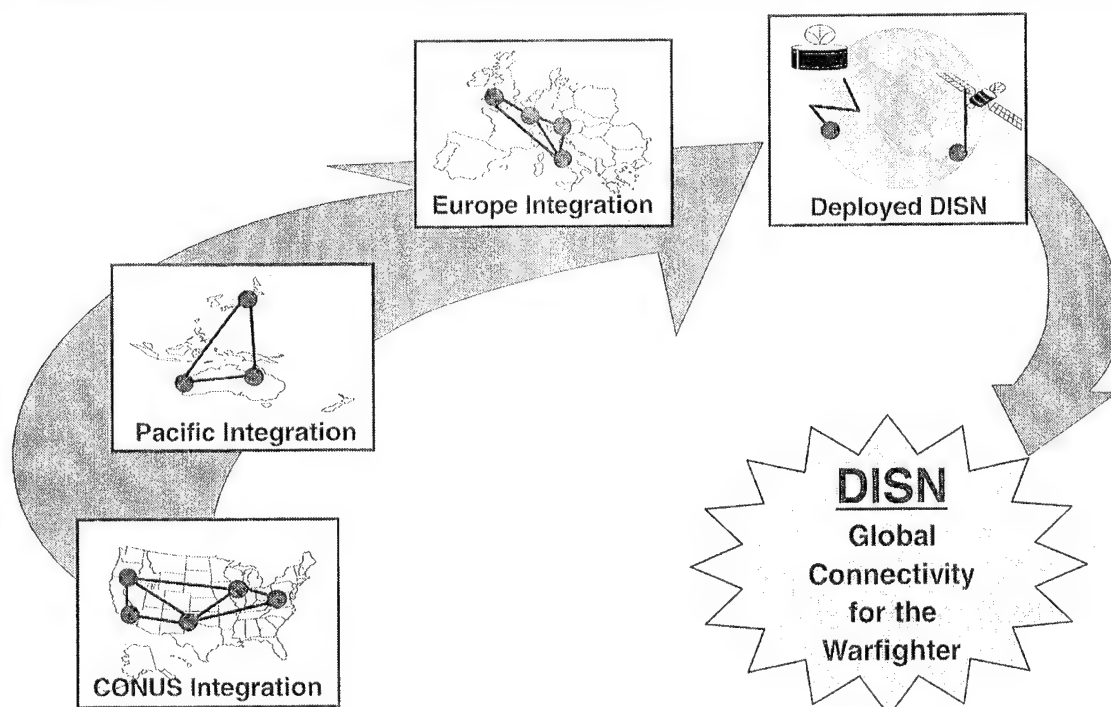 - UPHOLD DEMOCRACY
  - VIGILANT WARRIOR

Defense Information System Network (DISN)

- DISN is DOD's consolidated worldwide enterprise-level telecommunications infrastructure
  - It will provide the end-to-end information transfer network for supporting military operations
  - It is the umbrella initiative intended to guide the evolution of DOD's information transfer capabilities for the next 15 to 20 years
  - There are three major building blocks of the DISN:
    - Transport
    - Network management
    - Value added services

DISA is responsible for the overall lifecycle management of DISN.

DISN Evolution

Europe Integration

Deployed DISN

Pacific Integration

CONUS Integration

DISN
Global
Connectivity
for the
Warfighter

Defense Message System (DMS)

- DMS is DOD's secure, accountable, reliable messaging system based on Joint Staff validated requirements
  - Provides global integrated directory services
  - Consists of mainline commercial products provided by industry leaders
  - Interoperable environment developed on industry standards
  - Complete access to DoD, federal agencies, allies, commercial users, and the public

DISA is responsible for the GCCS Architecture and Engineering, Integration, Configuration Management and Fielding.

DMS Industry Team

GTE Vantage Solutions

BOEING

ANSTEC

ENTERPRISE SOLUTIONS LIMITED

LORAL Federal Systems

COMM POWER
Communications & Power Engineering, Inc

CDA
"Your Information Technology Partner"

DMS

ANDRULIS RESEARCH CORPORATION

Microsoft

Lotus

GSI Government Systems, Inc.
An Infonet Services Provider

TROY

HEWLETT PACKARD

COMPUTER ASSOCIATES   GCH

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DMS Product Pipeline

Candidate X.400/X.500 Products

1. Vendors pre-test in own labs
2. NVLAP test for U.S. GOSIP / POSIT compliance
3. JITC test for Military Message Content Type & Message Security Protocol compliance
4. JITC test for Functionality, Security, & Performance compliance
5. DMS Compliant Products List

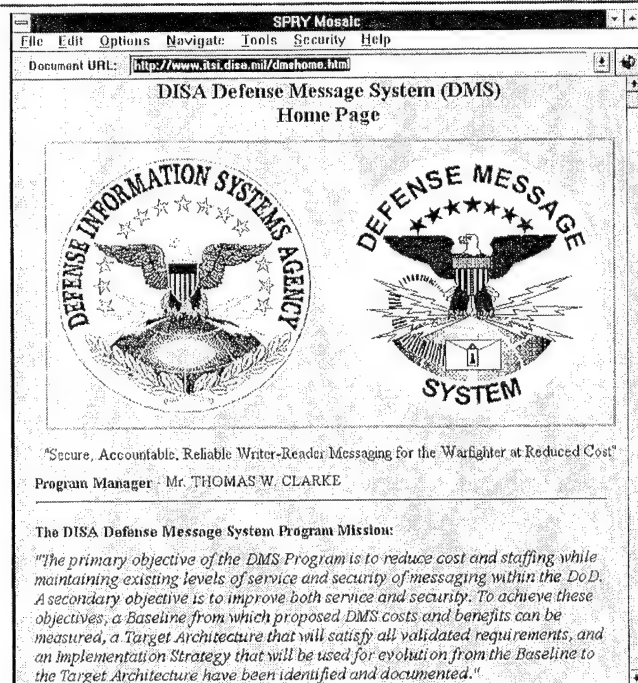|	
NVLAP:	National Voluntary Laboratory Accreditation Program
JITC:	DISA's Joint Interoperability and Test Command
GOSIP:	Government Open Systems Interconnect Protocol
POSIT:	Profiles for Open Systems Internetworking Technologies

DMS Information Sources

- DMS Home Page on the WWW
- Available 24 Hours
- OSD, Service & Agency POCs
- ROMC & MROC Text
- Programmatics & Schedules
- Management Structure
- Implementation Strategy
- Policies & Directives
- White Papers
- If you don't see what you need here -- *ask for it!*

SPRY Mosaic

File Edit Options Navigate Tools Security Help

Document URL: http://www.itsi.disa.mil/dmshome.html

DISA Defense Message System (DMS) Home Page

"Secure, Accountable, Reliable Writer-Reader Messaging for the Warfighter at Reduced Cost"

Program Manager - Mr. THOMAS W. CLARKE

The DISA Defense Message System Program Mission:

"The primary objective of the DMS Program is to reduce cost and staffing while maintaining existing levels of service and security of messaging within the DoD. A secondary objective is to improve both service and security. To achieve these objectives, a Baseline from which proposed DMS costs and benefits can be measured, a Target Architecture that will satisfy all validated requirements, and an Implementation Strategy that will be used for evolution from the Baseline to the Target Architecture have been identified and documented."
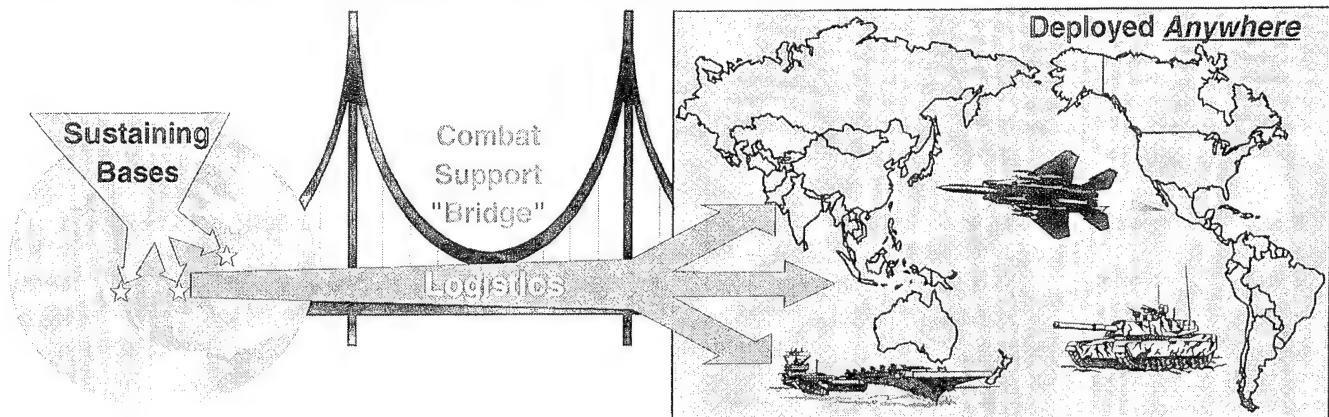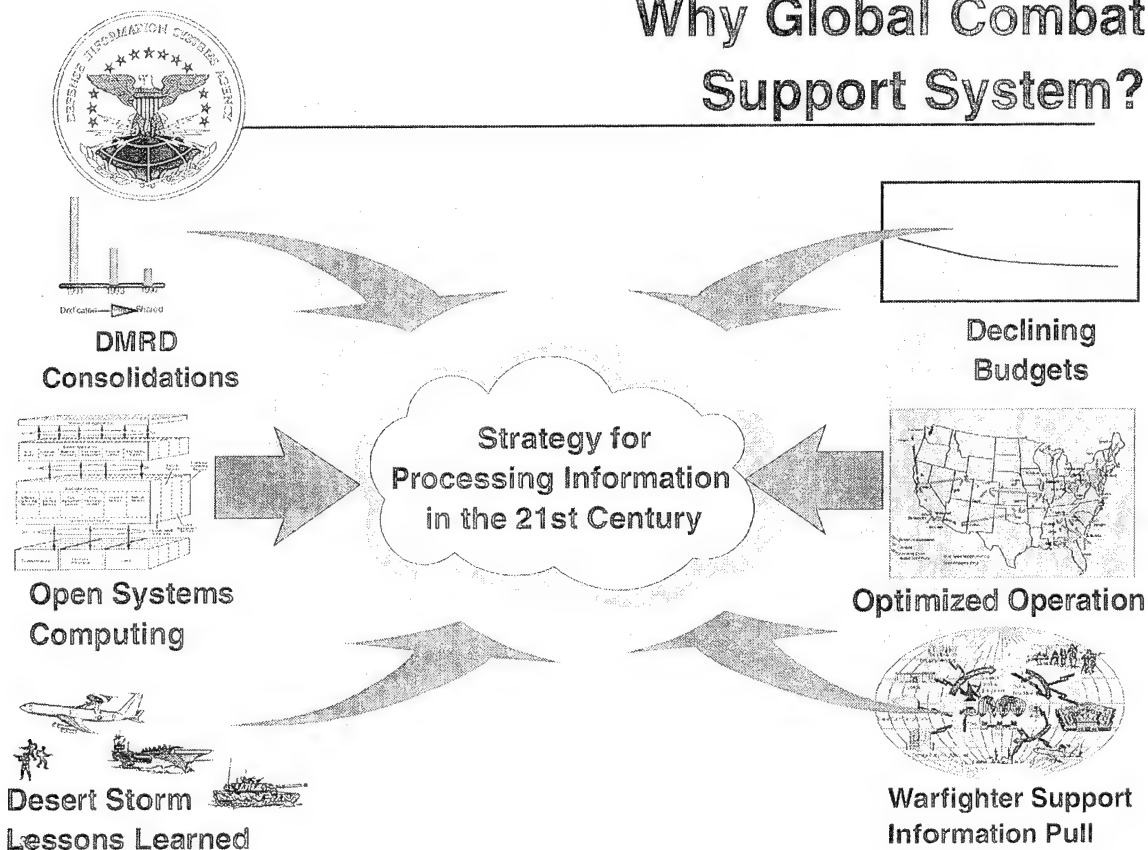
Global Combat Support System (GCSS)

"*To meet our Nation's global responsibilities, our ability to move and sustain combat forces virtually anywhere in the world must be maintained.*" *General Shalikashvili*
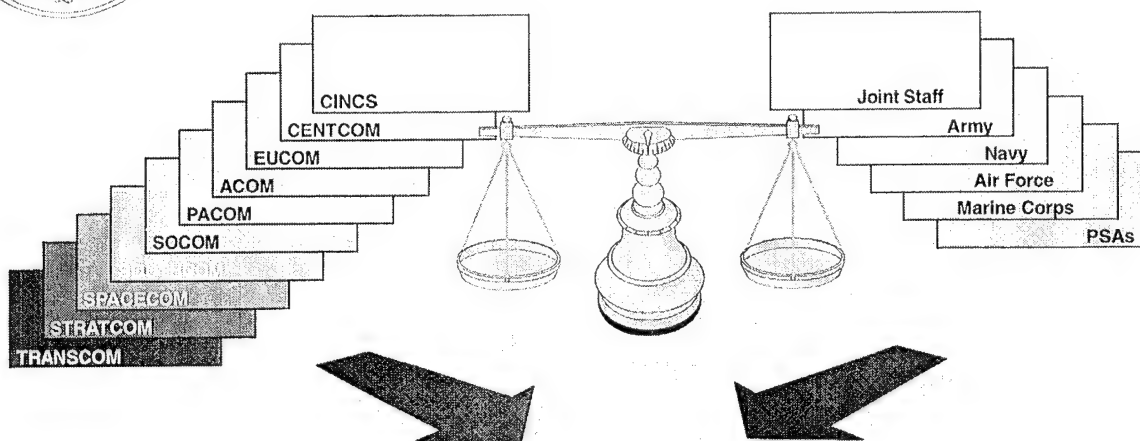
GCSS is the technical implementation

Sustaining Bases

Combat Support "Bridge"

Logistics

Deployed *Anywhere*

Why Global Combat Support System?

DMRD Consolidations

Open Systems Computing

Desert Storm Lessons Learned

Strategy for Processing Information in the 21st Century

Declining Budgets

Optimized Operation

Warfighter Support Information Pull

Global Combat Support System
Core Requirements

CINCS
CENTCOM
EUCOM
ACOM
PACOM
SOCOM
SPACECOM
STRATCOM
TRANSCOM

Joint Staff
Army
Navy
Air Force
Marine Corps
PSAs

GCSS Core Applications

- **Acquisition (EC/EDI)**
- **Logisitics**
  - Maintenance
  - Transportation
  - Total Asset Visibility
  - Supply\Inventory Control
- **Engineering**
- **Personnel**
- **Finance**
- **Health Services**

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Status of Core Efforts

GCCS declared single migration system Nov 93
- Installed at 37 sites
- WWMCCS shuts down Dec 95

DISN RFPs released Jul / Sep 95 (all in source selection now)
- DISN Services Support - Global
- DISN Video Services - Global
- DISN Switch / Bandwidth Manager Services
- DISN Transmission Services

DMS contract awarded to Loral May 95
- Other vendors can inject products into DMS pipeline via Compliance Testing & Evaluation (CT&E) process
- Contact Loral or your customer for details
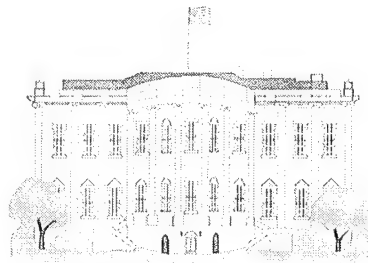
GCSS is not an acquisition
- Technical implementation of requirements for worldwide processing support for Acquisition, Logistics, Engineering, Personnel, Finance, & Health Services

DISA and Industry

National Security Telecommunications Advisory Committee (NSTAC), CEOs of:

AT&T	Harris
BankAmerica	Motorola
Bellcore	NTI
Boeing	PACTEL
Comsat	Rockwell
TRW	Sprint
Unisys	Hughes
USTA	Interdigital
US West	ITT
Wiltel	Lockheed
CSC	Loral
EDS	MCI
GTE	MFS
	IBM

SECDEF

↑

Director DISA, Manager NCS

Committee of Principals:

FEMA	State
NASA	Defense
FCC	Interior
NSA	Commerce
USPS	Trans
FRB	Treasury
NRC	Justice
NTIA	Agriculture
USIA	Energy
	CIA
	GSA
	HHS
	JS
	VA

EC/EDI

- It's here, now!
- It's how the Gov't will do business
- You need to be part of it
- It fosters competition
- It gives us best value
- It helps achieve interoperability via adherence to standards

Cost *Value*

It's a win - win situation
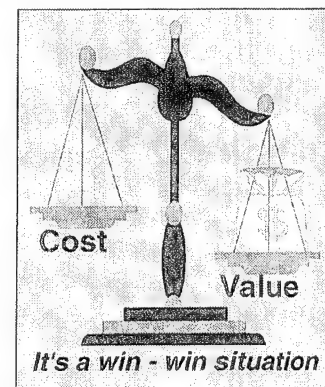
- EC/EDI Expo: May 96
  - Audience: DoD, Trading Partners, VANs
 - Format: Industry booths, briefs, demos
  - POC: DISA Public Affairs Office

The Future of EC/EDI

- **Emerging Technologies:**
  - **Electronic catalogs**
  - **Prime vendors**
  - **Quick response**
  - **Virtual shopping**
  - **Virtual inventory**
  - **Virtual products**
  - **Integrated Standard Procurement System role**
- **Potential Functional Areas:**
  - **Transportation**
  - **Medical Supply**
  - **Health Services**
  - **Personnel**
  - **Finance**
  - **Materiel Supply . . .**

POTENTIAL TRAFFIC VOLUME

Transactions / Day

2,000,000	
1,500,000	1,500,000
1,000,000	
500,000	
10,000	
0	
1995	200X
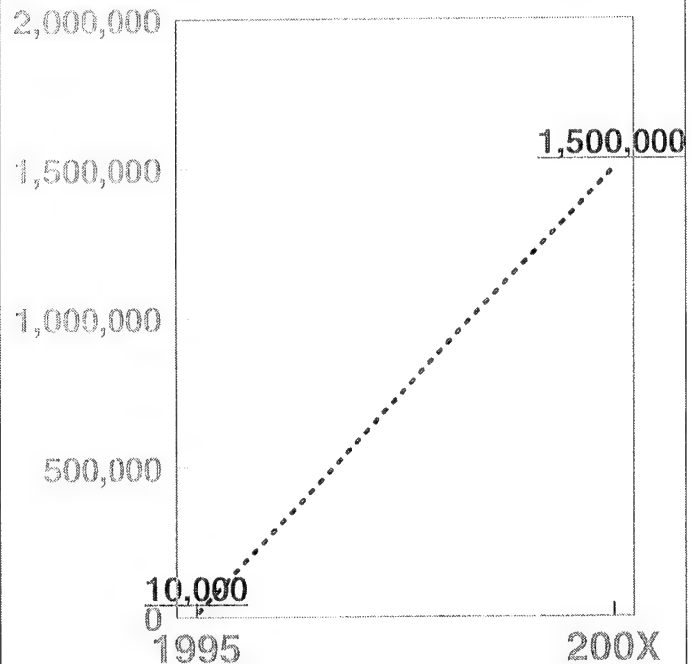
INFOWAR: The New Battleground

Information Warfare is:

- _Low cost_ way of waging war
- _Low risk_ to attacker; difficult to determine source
- _High payoff_ option, compared to cost
- _Without boundaries_ in time or geography
- _Available to all_ states, organizations, individuals
- _Unsophisticated_ technology to employ
- Significant _force multiplier_
- _Serious threat_ to everyone

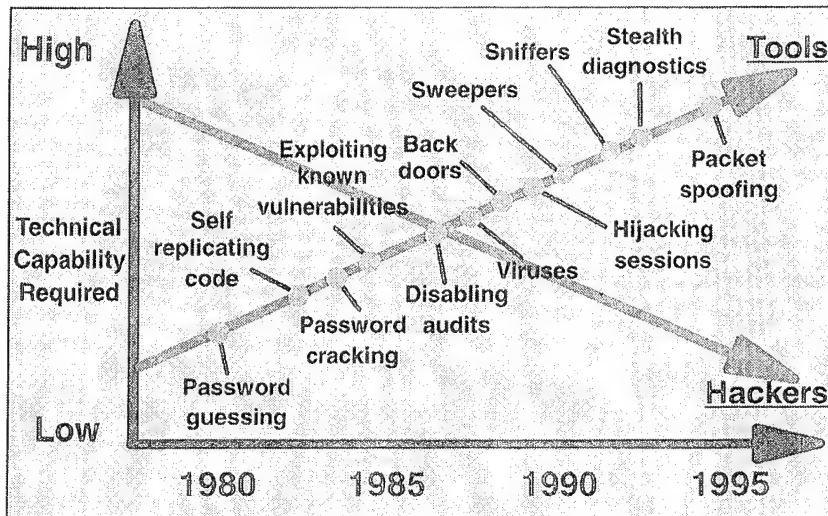- SOMETHING WE CAN _(MUST)_ DEFEND AGAINST!
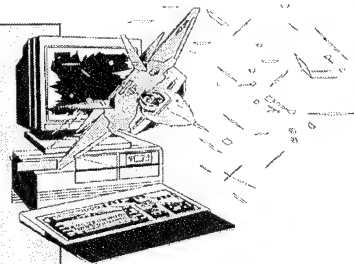
DISA's ROLE:
- Defend the DII
- Assure systems availability

Threats increasing in sophistication & frequency:

○ Of 150 companies surveyed, 98.6% experienced some computer crime *(Business Week, Jun 95)*

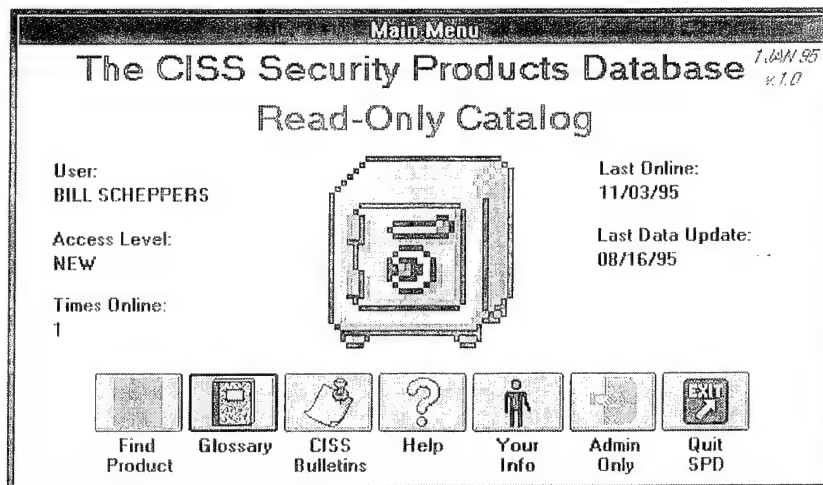○ 17% of North American companies on Internet suffered losses last year *(Montreal Gazette, Apr 95)*

○ Hackers attacked AOL, fouled up new billing program, created mail "bombs" and stole access to AOL user accounts -- including AOL's president *(Computer World, Aug 95)*
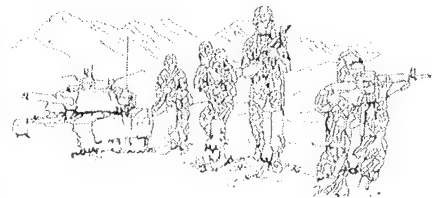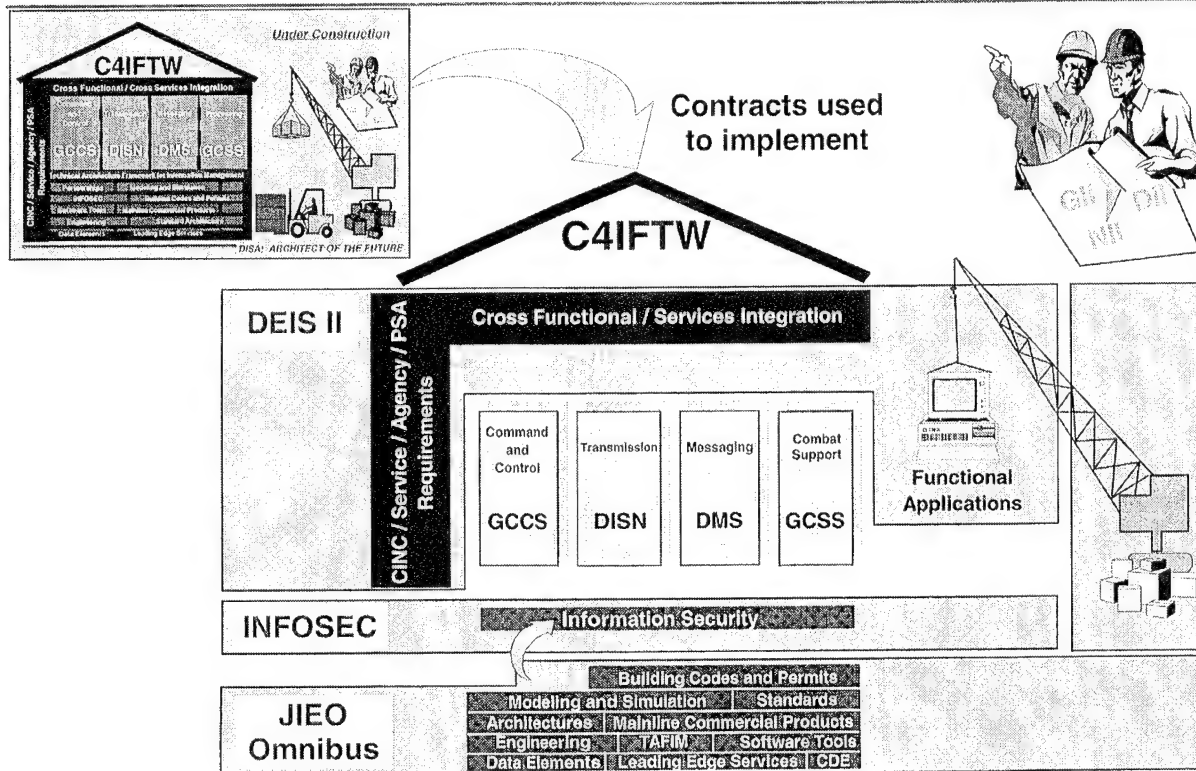

DISA's Center for Information Systems Security (CISS) produces the Security Products Database catalog to advertise YOUR security products *(free!)*

○ YOU maintain the catalog (update as often as you wish)
○ Customer base is entire DoD community (systems integrators, engineers, program managers, etc.)
○ Point your Web browser to www.disa.mil/ciss/spd.html for the details

JIEO Omnibus / INFOSEC / DEIS II

Contracts used to implement

C4IFTW

Contract Comparisons

	INFOSEC	DIES II	JIEO Omnibus
Scope	Engineering Services and Technical Support to produce unified, fully integrated systems security solutions for the DoD.	Functional Integration Services to move mission applications into the DII shared environment. Includes application development, deployment, & maintenance. Uses & applies core building blocks delivered through the Infosec, JIEO Omnibus and other DoD programs.	Systems Engineering Services for core building blocks to implement the DII. Used to develop the COE, CDE, Technical Architecture, Standards, Technical Integration & engineering services for DISA core programs (e.g., DMS, nuclear C2, etc.).
Awards	CSC SAIC Merdan Group, Inc.	Multiple awards anticipated.	Multiple awards anticipated
Date	12 Jul 95	Est: Jul 96	Est: Dec 96
Lifecycle	Base year + 4 option years	Base year + 4 option years	Base year + 4 option years
Ceiling	$1.095B	TBD	TBD
Type	IDIQ with task orders	IDIQ with task orders	IDIQ with task orders
Customers	All DoD components and Agencies and non-DoD Federal Agencies	All DoD components and Agencies and non-DoD Federal Agencies	DISA

National Capital Region Contracting Office -- NCRCO

- New organization, created Sep 95

  POC: Lt Col Carmichael, (703) 607-6901

- Responsibilities:
  - CONUS focus
  - HQ DISA customers
  - "Black World" customers
  - IT supplies & services

- $578M in contracts in '95
  - New contracts
  - Contract mods

Defense Information Technology Contracting Office -- DITCO

- Responsibilities:
  - World wide focus
  - Long haul comm
  - Megacenters
  - IT equipment / services

- $847M in contracts in '95
  - New contracts
  - Contract mods
  - Credit card purchases

SPRY Mosaic

File   Edit   Options   Navigate   Tools   Security   Help

Document URL: http://www.disa.mil/line/ditco.html

DISA
Defense Information Systems Agency
Taking Pride in Who We Are and What We Do!

Defense Information Technology Contracting Office (DITCO)

Commander - *Col. Tamblyn*, United States Air Force; "Our Customer is the Warfighter!"

The Defense Information Technology Contracting Office (DITCO) Mission:

"Defense Information Technology Contracting Office (DITCO) will acquire, account, and pay for the IT supplies and services required by DISA, other DOD agencies, the MILDEPS, and other Federal agencies, as directed by the D4."

Defense Information Technology Contracting Office (DITCO)

Scott AFB, IL.
Commercial Telephone Number: (618) 256-9100

DSN Telephone Number: 576-9100

I. Description:

DITCO is responsible for the procurement of commercial Information Technology (IT) products and services required by DOD agencies and such other U.S. Government agencies, as directed by the D4. DITCO's procurement responsibility is worldwide in scope. DITCO is a Defense Business Operating Fund (DBOF) activity and charges its customers a nominal fee for the procurement services provided.

DITCO's Acquisition Bulletin Board Systems

- 2 BBSs available, both accessed by 1 number:
  - (618) 256-9200
  - 24 access lines

- DISA Acquisition BBS (DABBS)
  - Telecommunication leases / purchases

- IT Acquisition BBS (ITABBS)
  - IT services and commodities (PCs, peripherals, software, etc.)

Smartcom LE - DITCO BBSs
File   Edit   Connection   Settings   SCOPE   Special   Help

DABBS REQUIREMENTS MENU

Area	Description
1	Continental U.S. (CONUS) Requirements
2	International Requirements
3	Alaska Requirements (Intratheater)
4	Pacific Requirements (Intratheater)
5	Europe Requirements (Intratheater)
6	DITCO Contracting Opportunities (Other)
7	DISA HQ Contracting Activity
8	General Announcements
9	Policy and Procedure Guidance
10	DABBS User Assistance

0:01:34 14400 COM3:

Smartcom LE - DITCO BBSs
File   Edit   Connection   Settings   SCOPE   Special   Help

ITABBS REQUIREMENTS MENU

Area	Description
1	Request for Proposals (RFP)
2	Request for Quotations (RFQ)
3	Invitation for Bids (IFB)
4	Area not used
5	Area not used
6	Area not used
7	Area not used
8	Area not used
9	ITABBS User Assistance
10	Area not used

0:09:16 14400 COM3:

How to Contact DISA

- **World Wide Web Home Page**
  - *www.disa.mil*

SPRY Mosaic
File   Edit   Options   Navigate   Tools   Security   Help
Document URL: http://www.disa.mil

DISA
Defense Information Systems Agency
Taking Pride in Who We Are and What We Do!

Defense Information Systems Agency (DISA)

DISA Home Page

DISA Director - *Lt Gen Albert J. Edmonds*, United States Air Force, [Biography] "Our Customer is the Warfighter!"

- **E-Mail**
  - *(name)@ncr.disa.mil*
- **BBS**
  - *(618) 256-9200, DITCO Electronic Bulletin Board System*
- **Phone**
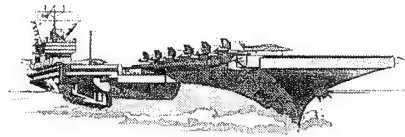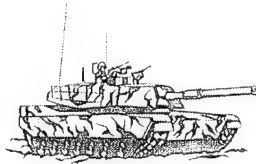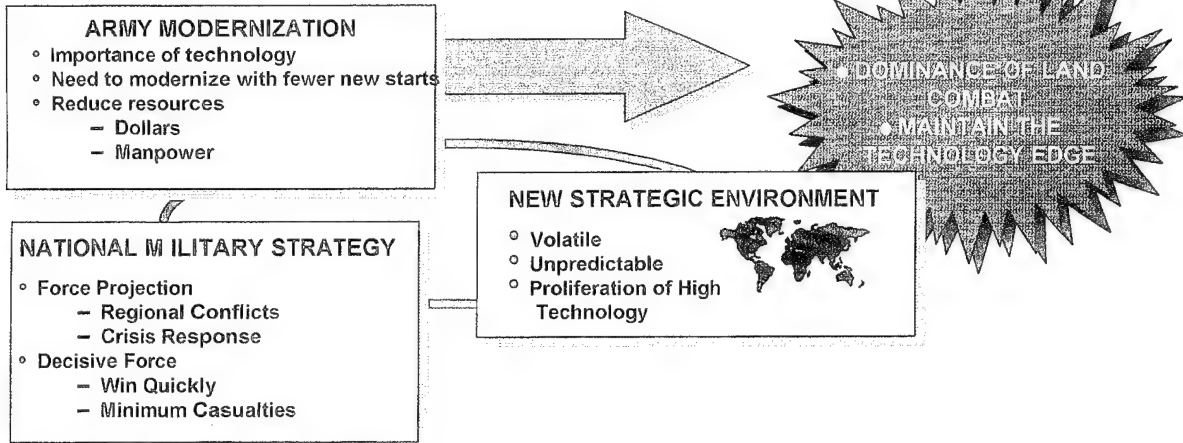 - *(703) 607-6900, DISA Public Affairs Office*
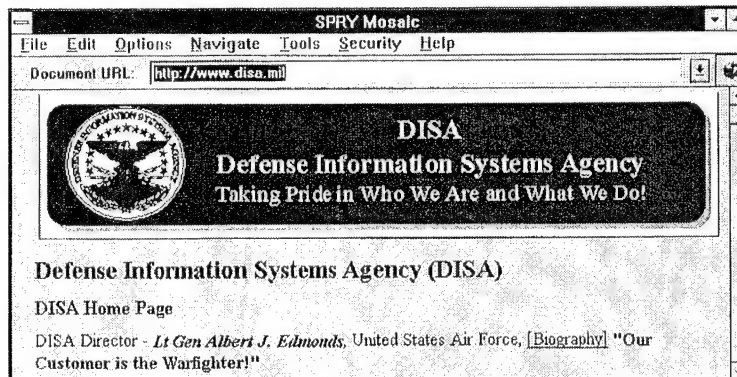
- Warfighter requirements are key!

- Best value depends on healthy competition

- Interoperability vital for defense info systems

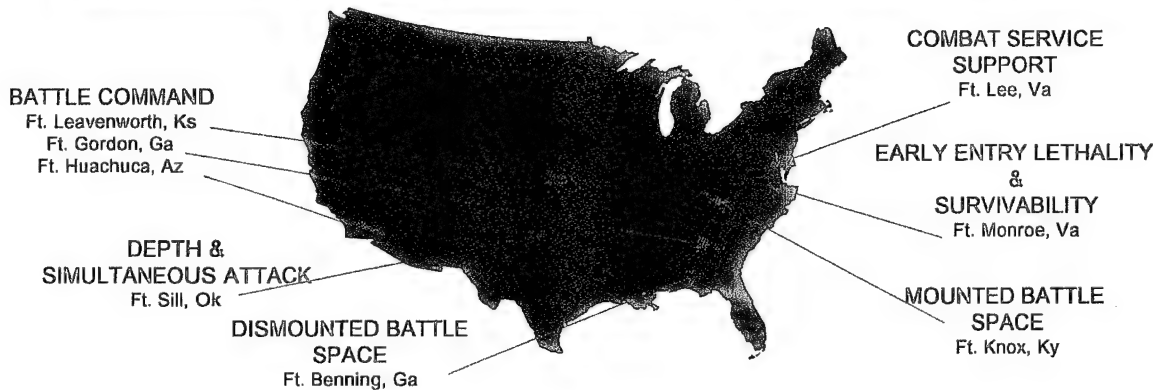- Success in 21st century requires cooperative effort

WHY BATTLE LABS ?

ARMY MODERNIZATION
- Importance of technology
- Need to modernize with fewer new starts
- Reduce resources
  - Dollars
  - Manpower

- DOMINANCE OF LAND COMBAT
- MAINTAIN THE TECHNOLOGY EDGE

NATIONAL MILITARY STRATEGY
- Force Projection
  - Regional Conflicts
  - Crisis Response
- Decisive Force
  - Win Quickly
  - Minimum Casualties

NEW STRATEGIC ENVIRONMENT
- Volatile
- Unpredictable
- Proliferation of High Technology

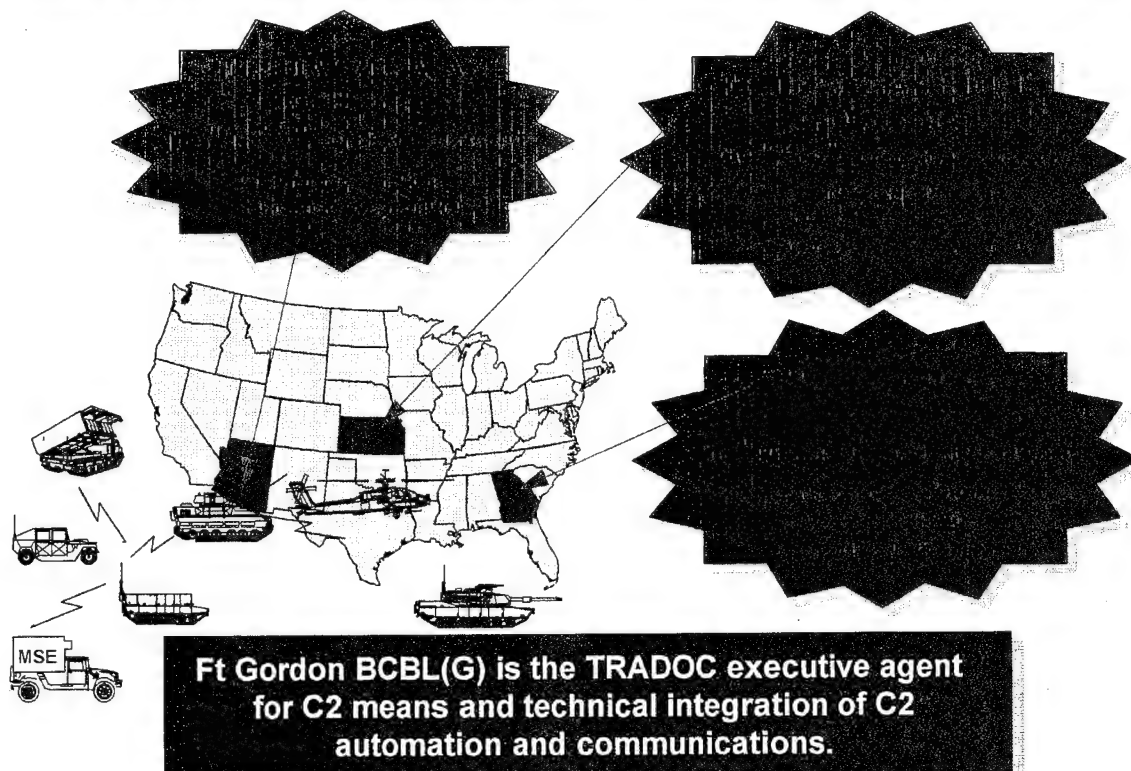**Driving Forces Behind the Development of Batt**
- The New World Order
- Rapid Technology Changes
- The Coming Of The Information Age

THE ARMY'S RESPONSE
— AN APPROACH THAT FITS OUR ARMY —

COMBAT SERVICE SUPPORT
Ft. Lee, Va

BATTLE COMMAND
Ft. Leavenworth, Ks
Ft. Gordon, Ga
Ft. Huachuca, Az

EARLY ENTRY LETHALITY & SURVIVABILITY
Ft. Monroe, Va

DEPTH & SIMULTANEOUS ATTACK
Ft. Sill, Ok

DISMOUNTED BATTLE SPACE
Ft. Benning, Ga

MOUNTED BATTLE SPACE
Ft. Knox, Ky

Ft Gordon BCBL(G) is the TRADOC executive agent for C2 means and technical integration of C2 automation and communications.
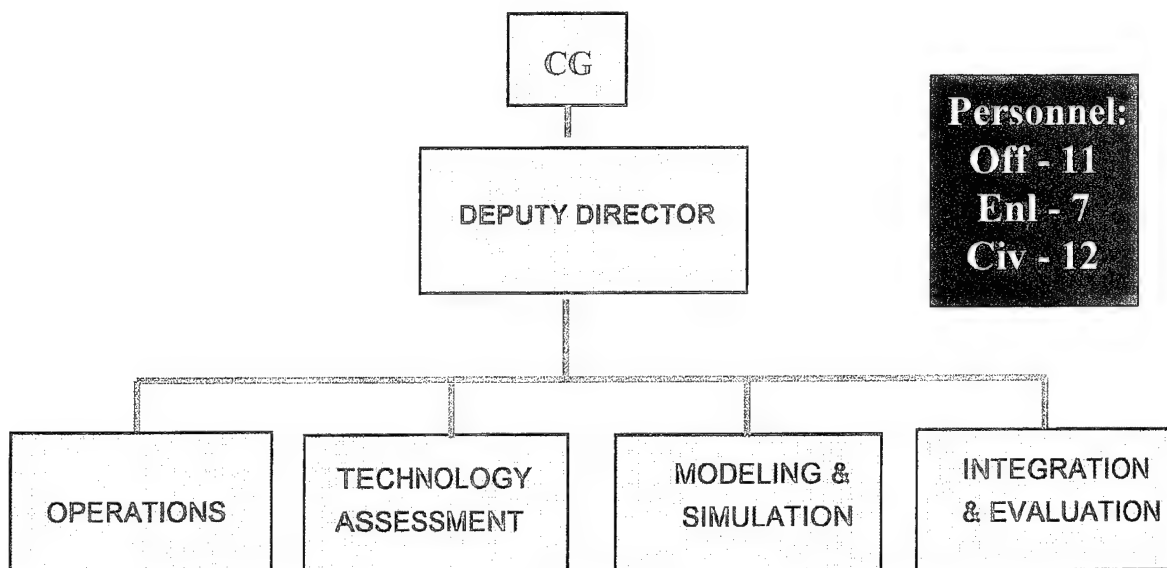
BATTLE LAB S - AN ARMY EXAMPLE OF THE "RE-INVENTING GOVERNMENT" CONCEPT

✔ **Define new ways of doing business:**
- Identify capabilities, requirements, & priorities
- Create integrated environment
- Maintain technical currency at affordable cost.

✔ **Attack traditional 7-15 year Materiel Acquisition Process:**
- Develop "Informed Requirements"
- Reduce Materiel Acquisition / Dev process
- "Golden Nuggets".
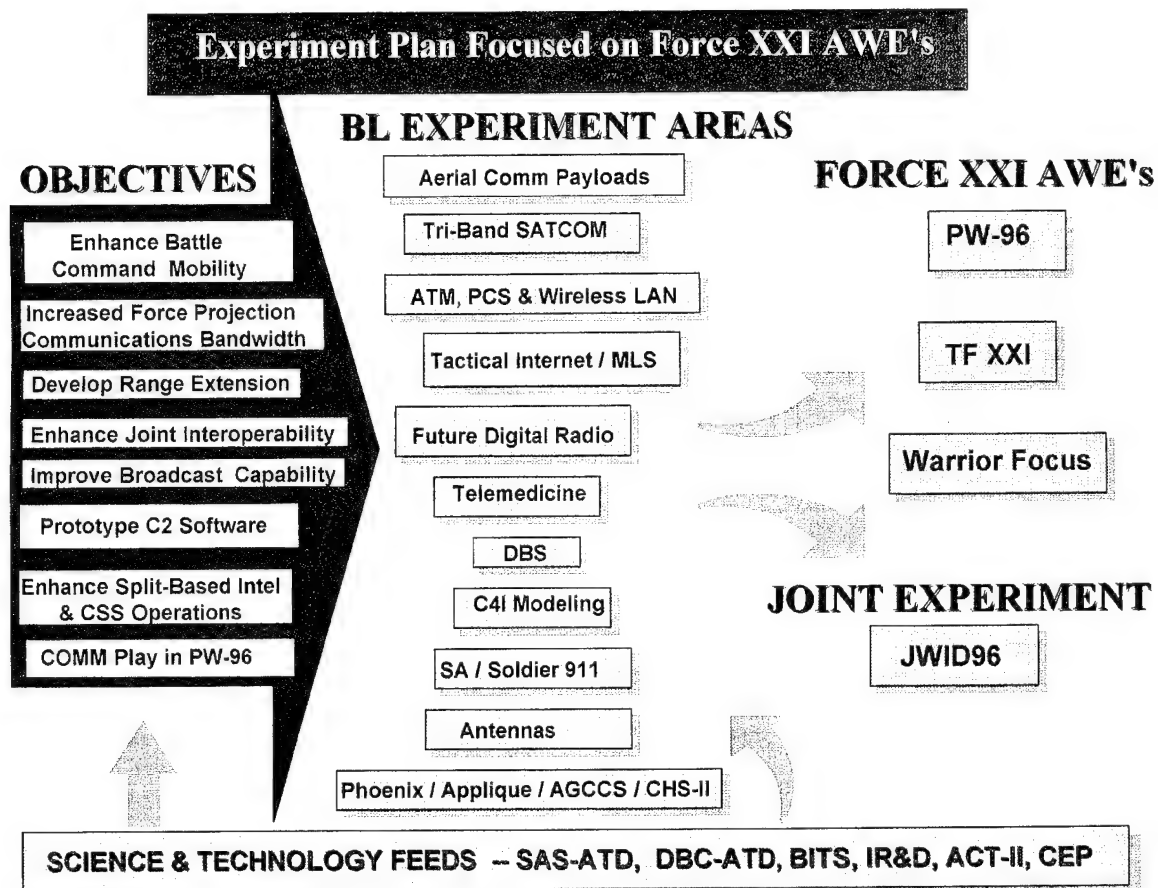
BATTLE COMMAND BATTLE LAB
(FT GORDON)

```
                        ┌──────────┐
                        │    CG    │
                        └────┬─────┘
                             │
                   ┌─────────┴─────────┐          ┌─────────────┐
                   │  DEPUTY DIRECTOR  │          │ Personnel:  │
                   └─────────┬─────────┘          │ Off - 11    │
                             │                    │ Enl - 7     │
                             │                    │ Civ - 12    │
      ┌──────────┬───────────┼───────────┬────────────────┐
┌──────────┐ ┌────────────┐ ┌──────────┐ ┌──────────────┐
│OPERATIONS│ │ TECHNOLOGY │ │MODELING &│ │ INTEGRATION  │
│          │ │ ASSESSMENT │ │SIMULATION│ │ & EVALUATION │
└──────────┘ └────────────┘ └──────────┘ └──────────────┘
```

BCBL(G) MISSION

The Ft. Gordon element of the Battle Command Battle Lab
is responsible for the means of battle command and friendly
elements of information operations:

- ○ Technology solutions for C4I .
- ○ Develop on-the-move battle command capabilities.
- ○ Improve C4I interoperability with joint and coalition forces.
- ○ Enhance space-based systems for battle command.
- ○ Enhance broadcast technology for battle command.
- ○ Enhance CSS battlefield automation and communications support.
- ○ Influence DOD tech base.
- ○ Influence industry IR&D.

BL EXPERIMENT AREAS

OBJECTIVES

- Enhance Battle Command Mobility
- Increased Force Projection Communications Bandwidth
- Develop Range Extension
- Enhance Joint Interoperability
- Improve Broadcast Capability
- Prototype C2 Software
- Enhance Split-Based Intel & CSS Operations
- COMM Play in PW-96

- Aerial Comm Payloads
- Tri-Band SATCOM
- ATM, PCS & Wireless LAN
- Tactical Internet / MLS
- Future Digital Radio
- Telemedicine
- DBS
- C4I Modeling
- SA / Soldier 911
- Antennas
- Phoenix / Applique / AGCCS / CHS-II

FORCE XXI AWE's

- PW-96
- TF XXI
- Warrior Focus

JOINT EXPERIMENT

- JWID96

SCIENCE & TECHNOLOGY FEEDS -- SAS-ATD, DBC-ATD, BITS, IR&D, ACT-II, CEP

BATTLE COMMAND BATTLE LAB
SCIENCE & TECHNOLOGY METHODOLOGY

✓ **Influence DOD & Industry:**

- **Battle Labs :**
  - **Develop OCR's.**
  - **Conduct S&T Reviews.**

- **BCBL(G) Proactive Methodology**
  - **Created 3 Man S&T Cell**

BATTLE COMMAND BATTLE LAB
SCIENCE & TECHNOLOGY METHODOLOGY

✓ Influence Industry IR&D:
- ○ Open Environment
- ○ Leverage commercial technology
- ○ Participate in IR&D reviews.
- ○ ACT - II Program

Industry IR&D Activity

✓ Conduct annual or semi-annual **IR&D** Reviews:
- – With numerous companies
- – Brief BCBL(G) experiment plan.
- – Industry has modified and aborted projects.

✓ ACT-II Projects:
- – 7 projects in FY-94 ($4.5m).
- – 5 projects in FY-95 ($4.2m).
- – 1 project in FY-96 ($735k).

Payoff from working closely with industry is high !!!

Science & Technology Feeds   (ACT-II Programs)

FY 95

PROJECT #	TITLE
1. BCBL-112	Wideband Data Networking Phase II
2. CSS-034	Digital Video For MSE
3. BCBL-XX	64kbs Data Comm over 25khz VHF/UHF
4. BCBL-142	Multimedia ATM Services on the Battlefield
5. CSS-101	Tactical End-To-End Encryption Device (TEED)

FY 96

PROJECT #	TITLE
1. BCBL-37	PC Direct

SUMMARY

✓ **BCBL(G)'s S&T methodology is effective !**

- **Leveraged $85.9m of Army tech base dollars.**

- **Priority is leave-behind capability.**

- **Focused IR&D leaders in information technology.**

**Influencing the DOD Technology Base and Industry IR&D
is essential to
achieving Force XXI Battle Command Objectives !!!**

Digital Battlefield Communications (DBC-ATD) Architectural Elements
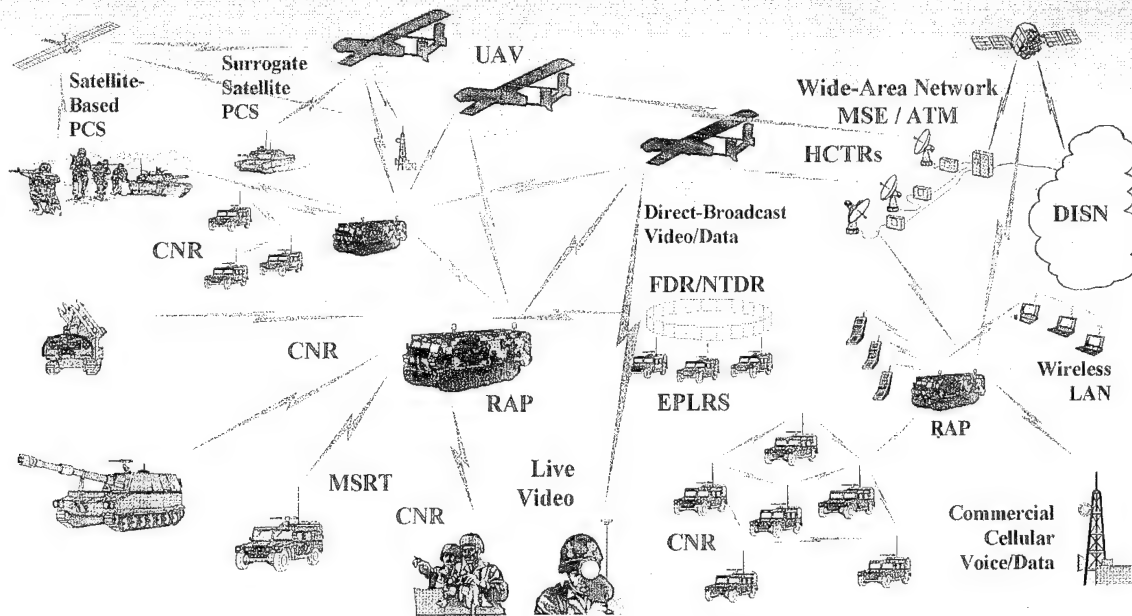
Battle Command Battle Lab - Gordon
Points of Contact

Deputy Director, Battle Command Battle Lab
COL Patrick Lusk
Commercial Phone - (706) 791-2057
FAX: (706) 791-8346
DSN (780-xxxx)
e-mail: luskp@bcblg.gordon.army.mil

Chief Technology Assessment Division
Mr Tom Mims
Phone: Same as Above
e-mail: mimst@bcblg.gordon.army.mil

Operations Officer
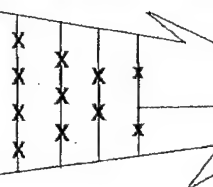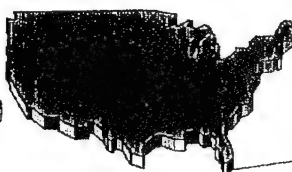MAJ Steve Mecham
Commercial Phone: (706) 791-75
e-amil: mechams@bcbl.gordon.army.mil

PEO STAMIS

Advanced Planning Briefing to Industry
Power Projection Programs
28-29 November 1995

Army Power Projection Doctrine

CONUS
Sustaining
Base Staging
Area

Area
of
Operations

☆ FM 100-5, Operations, defines the Army Power Projection doctrine

➡ "...ability to rapidly alert, mobilize, deploy, and conduct operations anywhere in the world."

☆ And the need for communications

➡ "A split-based logistics concept relies on communications systems that allow much of the logistics base to remain in CONUS, receive and act on information, and send necessary supplies forward."

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2

Power Projection Information Systems Requirements

FULL RANGE OF MULTIMEDIA SERVICES

SERVICE/JOINT/COMBINED INTERNETWORKING

GLOBAL COVERAGE

FLY-AWAY SYSTEM CONFIGURATIONS

DYNAMIC ACCESS

CONUS-Centric Force projection

Warfighting/ Peacekeeping

Enabling Technologies

CONUS - CENTRIC Force Projection

HIGH-SPEED RELIABLE NETWORKS: ATM & SONET

WIRELESS COMMUNICATIONS

SYNCHRONIZED DISTRIBUTED SECURE DATABASES

GLOBAL SATELLITE NETWORKS, DIRECT BROADCAST & LOW ORBIT

END ITEM MINIATURIZATION

Warfighting/ Peacekeeping

INTEGRATED GLOBAL NETWORK MANAGEMENT

IMPROVED COMPRESSION

Power Projection Resultant Change

★ **Must guarantee interoperability of legacy & new systems**

★ **Must provide world wide information system**
  ➡ True distributed information systems
  ➡ Very large logical data base

★ **Must guarantee robust communications system**

★ **Distinguishment between strategic, tactical & sustaining base must be eliminated - seamless**

★ **Must focus on integrating all systems to support the processes associated with readiness, mobilization & war fighting**

★ **Must get the most for every dollar**

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5

Establishing a Coherent Path
Actions Underway

★ **Establish a Common Army Architecture**

★ **Re-engineer the way we do business**

★ **Installation upgrades to support Force Projection**
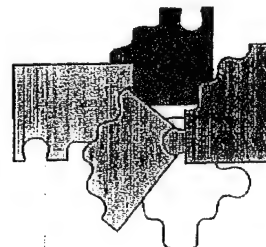
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6

Army Information Architecture
"The Products"

Operational Architecture

Technical Information Architecture

System Architecture
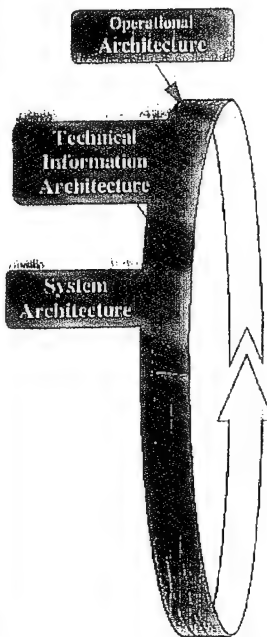
- THE TECHNICAL ARCHITECTURE IS THE "BUILDING CODE" UPON WHICH C4I SUPPORT IS BASED.

- THE OPERATIONAL ARCHITECTURE. THE DEFINITION OF MISSIONS, FUNCTIONS, AND TASKS, THE INFORMATION NEEDED FOR THEM, AND THE PRIORITY AND PERISHABILITY OF THIS INFORMATION. , THE MILITARY UNITS AND ELEMENTS AND THEIR FUNCTIONAL RELATIONSHIPS.

- THE SYSTEM ARCHITECTURE IS THE PHYSICAL LAYOUT AND RELATIONSHIP OF THE COMPUTER AND COMMUNICATIONS EQUIPMENT

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7

Army Technical Architecture

Underlying premise of TRM: Implementation of open systems environment allowing information systems to be developed, operated, and maintained independent of applications or proprietary vendor products

Application Software Entity

API Services — Application Program Interface (API)

Application Platform Entity

EEI Services — External Environment Interface (EEI)

External Enivironment

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8
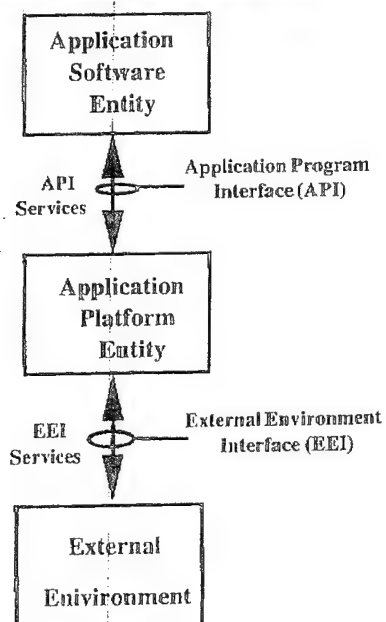
Army Technical Architecture

☆ **Provides** foundation for seamless flow of information among all systems that produce use or exchange data electronically

☆ **Provides** guidelines and standards for system development and acquisition that will dramatically reduce cost, development and fielding time

☆ **Mandates** the minimum set of standards for integration and interoperability

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9

Re-engineering the Way We Do Business

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10

Changes

☆ Reorientation from functional organizations to process managers

    ↪ More efficient

    ↪ Allows optimization in product development

    ↪ End to end control & accountability of the process

    ↪ Horizontal integration is emphasized

☆ A major cultural change

    ↪ We can do more with less

        ➢ Enterprise solutions

        ➢ Standard processes and ways of doing business

        ➢ Continuous technology refreshment

        ➢ Open Systems Architectures - commodity environment

    ↪ Only if people/organizations will accept

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11

Actions Underway

☆ Reviewing installation support process:

    ↪ Organizational changes may be necessary

        ➢ All PMs doing installation work under single PEO

    ↪ Develop standard installation architecture & design

        ➢ Individual PMs won't do their own solution

        ➢ Establish configuration management

    ↪ Single organization for DOIMS to call

        ➢ Single schedule

        ➢ Coordinated installation work

    ↪ Allows for Army enterprise solutions - open systems

        ➢ Reduced design, development & maintenance costs

        ➢ Reduced manpower/training costs

    ↪ Improved support to installations
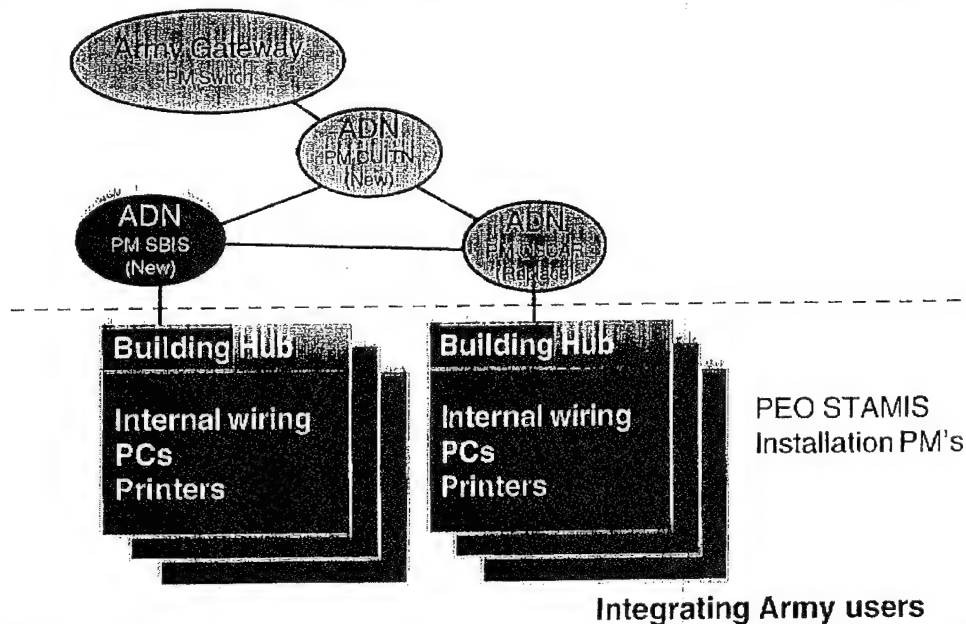
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12

Synchronization

★ **Develop Installation Infrastructure Template**
  ➡ **Integrate Heterogeneous Systems - Legacy**
  ➡ **Establish installation architecture**
    ➢ Adaptable
    ➢ Expandable
    ➢ Postured for the future
  ➡ **Integrated plan encompassing**
    ➢ Voice
    ➢ Data
    ➢ Video
    ➢ Support DoD systems
      ◆ Data Security
  ➡ **Enterprise solutions for network and system management**
    ➢ Supports DOIMs ➢ Identify Army-wide problems
    ➢ Reduced cost   ➢ Integrated COTS solution
    ➢ Configurable   ➢ Bring expertise to bear

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13

Fielding Installation Infrastructure
Integrating the Way We Do Business

PEO STAMIS
Installation PM's

Integrating Army users

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14
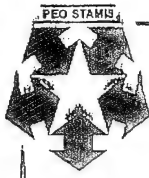
Installations as Force Projection Platform

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15

Improving Deployability and Flexibility

Then

Now

TACCS

CTASC-II

TACCS

DAS3

PC

MSE

PC

Sustaining Base Operations

NIPRNET

Sustaining Base Operations

Demonstrated During Hurricane Andrew Relief Effort and Operation Restore Hope

OCONUS   CONUS

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16

86

Sustainment and Force Support

DISA/GCCS

INSTALLATION

EAC

GW

JTF

Fixed Plant

Army Tactical

INTERFACES
- SARSS
- SIDPERS
- SPBS-R
- ULLS
- DAMMS-R
- SAAS
- SAMS
- CAISI
- CSSCS
- AGCCS
- ASAS
- AFATDS

ECB

<---- SARSS-O --->

Forward Area

CONUS

Theater of Operations

Blue = PEO Stamis/Installation   Green = PEO C3S/Tactical

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17

Vision C4I2 Architectural Environment – Year 2000

CONUS

Theater of Operations

Mega Centers

Level I DISA NSM

Host Nation Infrastructure

Rear Area

JCCC

DCS Entry Station

Level II DISA NSM

(AF)

Log, Per, Med, Fin, Tran, etc. Functional Personnel Nets

Level II DISA NSM

DCS Gateway

GW

PBX

Long Haul Communications

JTF EAC Area Net

STACCS

ISYSCON

Log, Per, Med, Fin, Tran, etc. Functional Personnel Nets

LAN

GW

TCCs

CSCE

PBX

DPIs

Log, Per, Med, Fin, Tran, etc. Functional Personnel Nets

SCC

ARFOR EAC Area Net

39D

MSE Area Net

NSMC & DOIM

Forward Area

ATCCS

Army Power Projection Base

— Connectivity
←→ Management Control
←→ Coordination

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18

Where the Army is Headed

Software applications

☆ DoD standard applications
  - CIM
  - Defense Message System
☆ DA standard applications
  - Need your help on those
  - Non-developmental & contractor off the shelf
  - Open system standards based systems
  - ADA is the language of choice
  - Standard data elements
  - Horizontal integration of systems
  - Re-engineered systems via software change package
  - Centralized software distributors
  - Embedded training
  - Scaleable, interoperable, portable systems

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19

Where the Army is Headed

Technology

☆ Client server architecture
☆ True distributed information systems
☆ Open systems via standards
☆ High speed installation networks - B-ISDN
  - Asynchronous transistor mode - 644mbps
  - Fiber based
  - Integrate voice data video
☆ Enterprise network & system management
☆ Extremely powerful desktop personal computers
  - Industry off the shelf solutions
☆ Multi media at the desktop
☆ Increased system security
  - MISSI technology
  - PCs compatible with DoD initiatives

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PEO-STAMIS ☎703 355 7079 10:01 12/01/95

What This Means to Industry

- ☆ Major emphasis on upgrading the installation infrastructure
    - ➡ Hubs, routers, switches, LANs, WANs, fiber etc.
- ☆ More emphasis on COTs and less on applications development
    - ➡ Companies with higher maturity levels will win the business
- ☆ Movement of more work from government people to industry - privatization
- ☆ Hardware will be treated as a commodity
    - ➡ Service and value added will determine who gets the business
        - ➢ Supportability will be a bigger factor
- ☆ Network services will be a bigger factor in the future
- ☆ Systems security will continue to be *very* important
- ☆ The only constant will be *change*

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21

PEO-STAMIS ☎703 355 7079 10:01 12/01/95

What This Means to Industry

(Continued)

- ☆ **Proprietary solutions will not be used**
- ☆ **Future developments will be in the common operating environment**
- ☆ **Future software work will mostly be integration**

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22

PEO STAMIS

Summary

☆ **A technical architecture exists based on open system standards**
  - ⇨ We must ensure we comply - interoperability
  - ⇨ We can't afford to develop unique or proprietary systems

☆ **Installations are force projection platforms**
  - ⇨ We must upgrade them
  - ⇨ Must work closer together - "dig one hole"

☆ **We are making significant changes in our business practices**
  - ⇨ Our support to installations must improve
  - ⇨ Need your cooperation to make it a reality

☆ **Leverage commercial technology**

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Overview

- ➤ Background/Mission
- ➤ Organization/Relationships
- ➤ Demographics
- ➤ Unique Missions
- ➤ Products/Services
- ➤ Initiatives
- ➤ The Future

BACKGROUND

- 28 Mar 94 - DepSecDef Memo
- 1 Apr 94 - SAM Officially established under ISC
- 18 Oct 94 - Concept Plan approved (12 Jul 94)
- 16 Nov 94 - ISC-P and AVIC join SAM
- 12 Dec 94 - Implementation Plan approved
      (28 Nov 94)
- 1 Mar 95 - DoD Directive 8220.1 published
- 7 Apr 95 - AFPCA OPCONs to SAM

The Secretary of the Army is hereby designated as the Single Agency Manager (SAM) for the Information Technology Services (ITS) on the Pentagon Reservation.

JOHN DEUTCH
28 MAR 94

MISSION

The Single Agency Manager is a professional customer-focused team dedicated to provide and sustain standardized, integrated, and innovative information technology products and services to the Pentagon community.

SAM ORGANIZATION CHART

USAISC

Director (A)
Mr. Budd
Dep Dir (AF)
Col Anno (AF)

PM,IM & T
LTC(P) de Kanter (A)

XO (AF)
MAJ Geuting (AF)

Sergeant Major
SGM Boyd (A)

Tech Dir (N-SES)
Mr Boland (AF)

Admin Spt Ofc (A)
Ms Hines (A)

Army Con Svc Center
LTC Sims (A)

Air Force Con Svc Center
Maj Haire (AF)

Chief of Staff (AF)
Col Brass (AF)

QUALITY STAFF
Ms Rollison (A)

1st SGT
CMSG Petro

Dir Opns
Col Hange (AF)

Air Staff Sys (AFPCA)
Col Foss (AF)
Mr Hoch (AF)

OSD Systems (AFPCA)
Col Mayberry (AF)
Mr Allen (AF)

PA&E
Col Rodi (AF)

Pnt Telcom Svc Cen (PTC)
Mr Owens (A)

AVIC
LTC Conner (A)

Customer Service Office
Ms O'Keeffe (A)

Log & Acq
Mr Brown (A)

Security
LtCol Chambers (AF)

Resource Mgt
Mr Calderon (A)

Pnt Tel Svc Cen (PTSC)
Mr Branning (A)

Ofc Auto Svc Cen
Maj Nauer (AF)

C2
LtCol (s) Riddle (AF)

Network Mgt (NMSC)
LtCol Stambaugh (AF)

Services
Maj McGee (AF)

Reqmts/Programs
Mr. Brasch (AF)

Data Svc Center
Mr Frye (A)

SAM RELATIONSHIPS

SAM Manpower Profile

O&M
68%
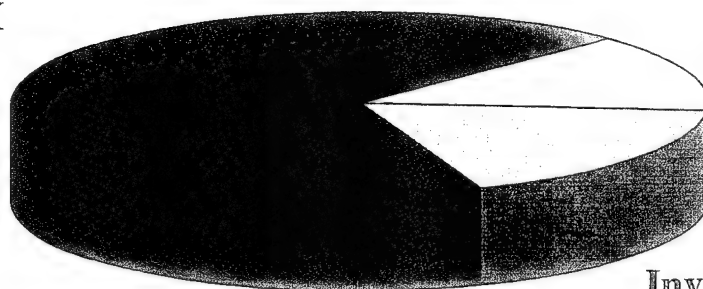
Admin
14%

Investment
18%

Personnel Demographics

Officer
12%/211

Civilian
42%/717

Enlisted
46%/784
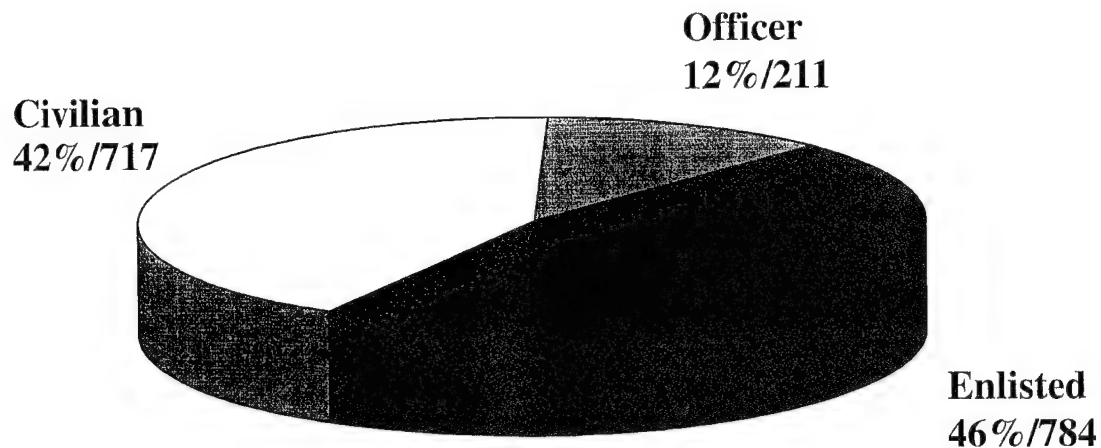
Functional Demographics

Voice
Communications
10%

Office
Automation
10%

Software 12%

Training/
Quality 8%

Data Center
21%

Security 3%

13%

16%
VI

Network
Management

7%

Plan/Eng/Implementation
Support
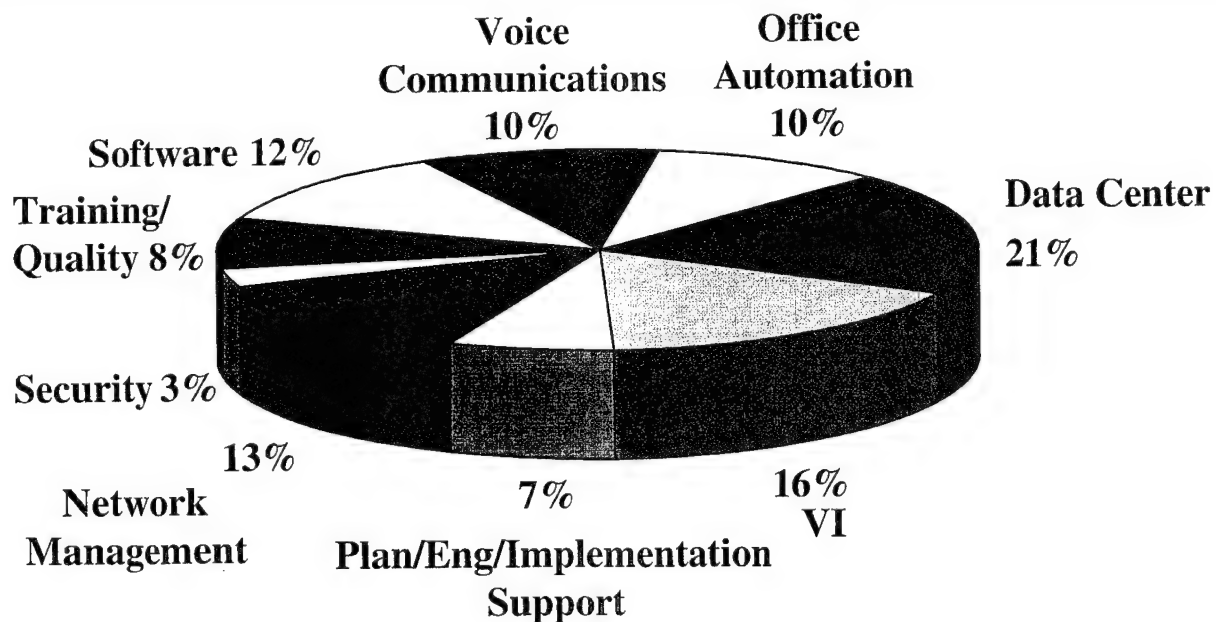
Uniqueness

- NMCC Executive Agent
- Mobile Communications
- OSD Mission
- 55th Combat Camera
- Army Visual Information Center
- Pentagon Telecommunications Center Executive Agent

Environment

Application Software

Voice Communications

Office Automation

Data Centers

Visual Information

Plan/Eng/Implementation

Network Management

Security

Training/Quality

- PPBS Moderization
- WWMCCS/GCCS
- Software Migration
- Product Evaluation
- System Design & Engineering
- System Maintenance

Environment

<u>Voice Communications</u>

Office Automation

Data Centers

Visual Information

Plan/Eng/Implementation

Network Management

Security

Training/Quality

Application Software

- Secure C2
  - 5 Red Switches, 2500 Leased Circuits
- NMCC & AFOC Networks
- SECDEF, CJCS, Sec Army, CSA Executive Travel
- WASH TAC Switch
  - AF Four Star Conference
- Administrative Telephones
  - 3 Switches, 8000 Phones, 3000 STU III
- Cellular and Pager Systems

Environment

<u>Office Automation</u>

Data Centers

Visual Information

Plan/Eng/Implementation
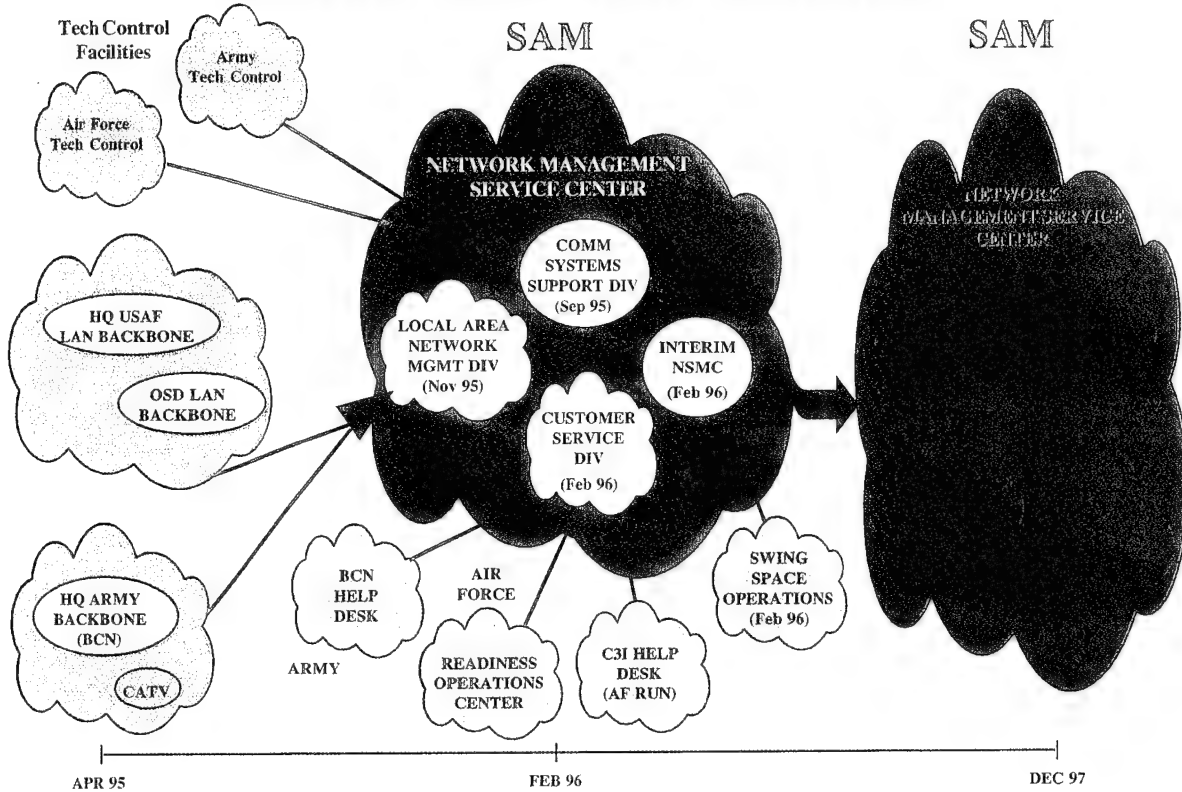
Network Management

Security

Training/Quality

Application Software

Voice Communications

- Over 11,000 OSD, Army, and USAF customers
- OSD LAN Backbone
- HQ AF LANs and Backbone
- C3I LAN
- Small Computer Technical Center
- Installation, Inventory & Reuse
- Warehouse

✳ Environment

Data Centers

Visual Information

Plan/Eng/Implementation

Network Management

Security

Training/Quality

Application Software

Voice Communications

Office Automation

- **Joint Comm Center (Army/Navy/Air Force)**
- **Joint Data Center (Army/Air Force)**

✳ Environment

Visual Information

Plan/Eng/Implementation

Network Management

Security

Training/Quality

Application Software

Voice Communications

Office Automation

Data Centers

- **Worldwide JCS Contingency/Exercise Spt COMCAM**
- **DOD VI Distribution**
- **DOD/Army Photo/TV/Graphics**

Environment

Planning/Eng/Implementation

Network Management

Security

Training/Quality

Application Software

Voice Communications

Office Automation

Data Centers

Visual Information

- Pentagon-wide Impact
  - Pentagon Standards Based Architecture
  - SAM Standards Profile
- SAM-Supported Systems
  - Enterprise I.T. Design
  - Technical Solutions
  - Project Management
  - Integration/Installation
  - Configuration Management

Environment

Network Management

Security

Training/Quality

Application Software

Voice Communications

Office Automation

Data Centers

Visual Information

Plan/Eng/Implementation

- Network Control (Voice/Data/Video)
- Readiness Center
- Tech Control Facilities
- Cable TV

Environment

Security

Training/Quality

Application Software

Voice Communications

Office Automation

Data Centers

Visual Information

Plan/Eng/Implementation

Network Management

- TEMPEST
  - 340+ Customers
- COMSEC
  - Key Manager for 300+ Accounts
- COMPUSEC
- Network Security Management
- DAA
- CSSO Training

Environment

Training/Quality

Application Software

Voice Communications

Office Automation

Data Centers

Visual Information

Plan/Eng/Implementation

Network Management

Security

- IT Training
- Quality Staff

Training/Quality

- Quality Approach
- Mission/Vision/Goals
- Strategic Plan
- Institutionalized Training
    - Orientation Course (1 day)
    - Customer Service Course (2 days)
    - Leaders Course (4 days)

Other Initiatives

- Pentagon Renovation Planning & Execution
- Pentagon Enterprise E-Mail Interoperability
- Swing Space O&M
- Organizational Integration

NETWORK MANAGEMENT & CUSTOMER
SUPPORT OPERATIONS MIGRATION

Tech Control Facilities

Army Tech Control

Air Force Tech Control

SAM

SAM

NETWORK MANAGEMENT SERVICE CENTER

HQ USAF LAN BACKBONE

OSD LAN BACKBONE

COMM SYSTEMS SUPPORT DIV (Sep 95)

LOCAL AREA NETWORK MGMT DIV (Nov 95)

INTERIM NSMC (Feb 96)

CUSTOMER SERVICE DIV (Feb 96)

NETWORK MANAGEMENT SERVICE CENTER

HQ ARMY BACKBONE (BCN)

CATV

BCN HELP DESK

AIR FORCE

ARMY

READINESS OPERATIONS CENTER

C3I HELP DESK (AF RUN)

SWING SPACE OPERATIONS (Feb 96)

APR 95

FEB 96

DEC 97

Evolution of The Pentagon
Data Processing Service Center

| FY95 | FY96 | FY97 |

DIPC-P
DISA
$8.5 M
120 People

SAM-OPD
Army
$8.5 M
151 People

Combined
Organization

$17 M
271 People

Consolidated*
Organization

$15 M
210 People

*Projected

102
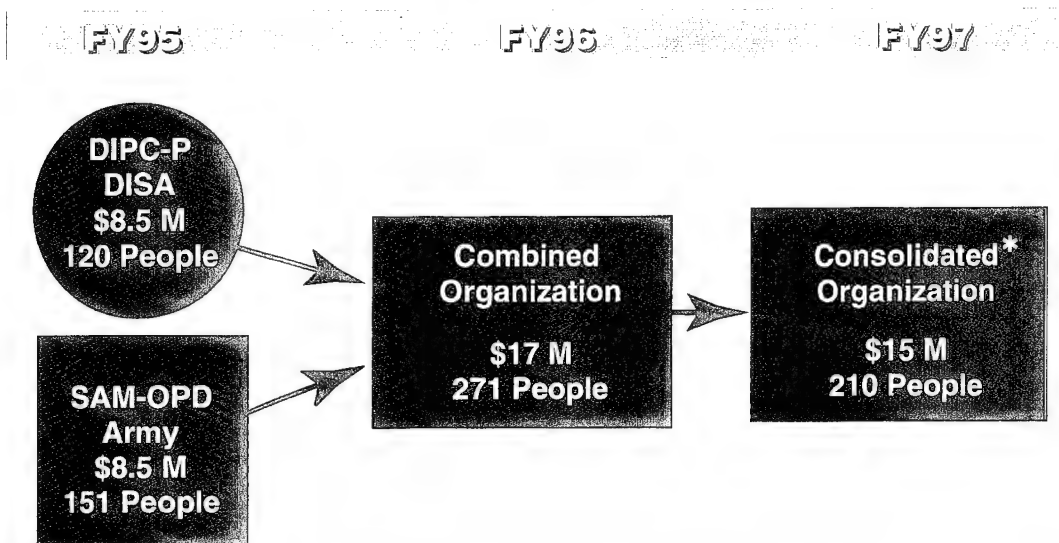
Vision: Pentagon as an Enterprise

Supported by SAM's IT Infrastructure
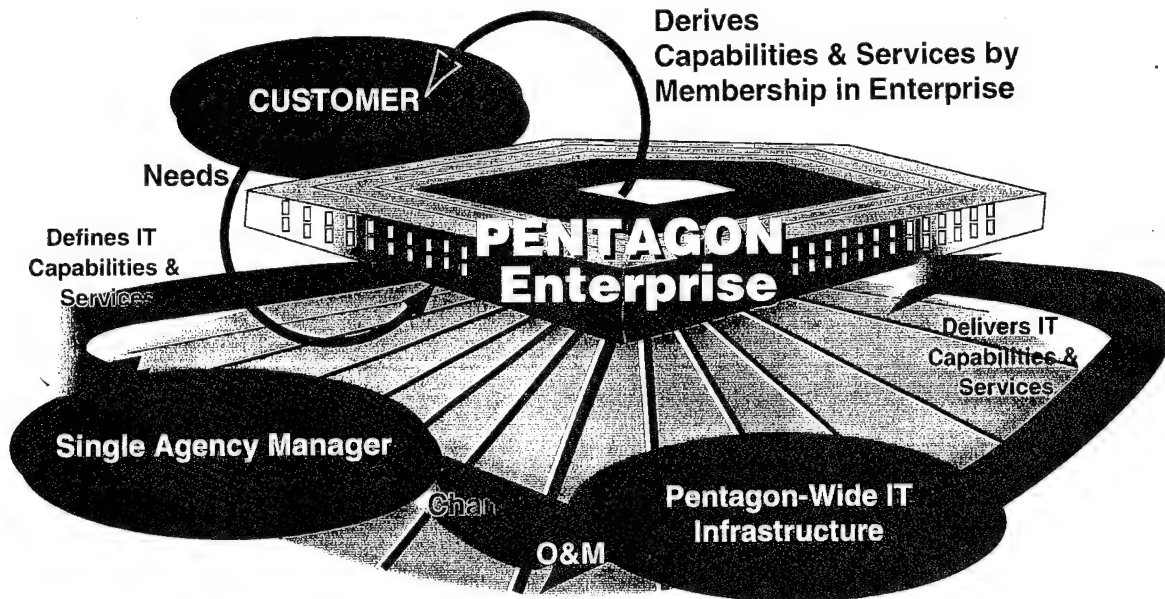
Vision: Pentagon as an Enterprise
Supported by SAM's IT Infrastructure

- **Corporate (Pentagon Enterprise) IT Agenda**
  - Set by Pentagon ITS Executive Committee (DODD 8220.1)
  - Defined in terms of capabilities
- **SAM's Pentagon-wide IT Infrastructure**
  - Consists of all physical, electronic, personnel, and fiscal resources
  - Changed, operated, maintained to provide capabilities and services to enterprise as set by corporate agenda
- **Customers Derive Capabilities and Services Based on Being a Member of the Enterprise**
  - IT as a *utility* vice a specially requested service
  - Only unique services need specific requests

KEYS TO ARCHITECTURE CONTROL

- ○ GENERATE BUY-IN
    - During architecture development
    - Common vision results in common direction

- ○ PROJECT/PROGRAM GUIDANCE
    - PSBA drives implementation activity
    - Compatible programs result in compatible systems

- ○ COMPLIANCE
    - SAM-SP prescribes implementation standards
    - Standardize systems result in effective, interoperable IT services

- ○ CONFIGURATION MANAGEMENT
    - Configuration control of fielded systems
    - O & M results feedback to improve architectural targets

Customer-Focused World Class
        Team
            Infrastructure
                Performance

.....Gateway to 21st Century IT.

Pentagon Renovation Information Management and Telecommunications Project

COL Scipio de Kanter
Project Manager

LTC Gerald R. Miller
Deputy Project Manager

Mission

The Washington Headquarters Services, assisted by the U.S. Army Corps of Engineers and the U.S. Army Information Systems Command will execute a comprehensive renovation of the Pentagon to transform the facility, including all Information Management and Telecommunications services, into a modern office environment.

Current Pentagon IM&T

2 CATV Broadcast Systems

Multiple Network Management Centers

6 Command/Operation Centers

11 ADP Ctrs
3 WWMCCS Ctrs

7 Tech Control Facilities

2 Radio Rooms

25,000 +/- Tenants

Multiple LANs
-Classified
-Unclassified

Black   Red
15 Telephone Switches

AVIC's

VTCs

Message Ctrs

Unstructured, Undocumented Distribution Systems (Fiber, Copper, Coax)
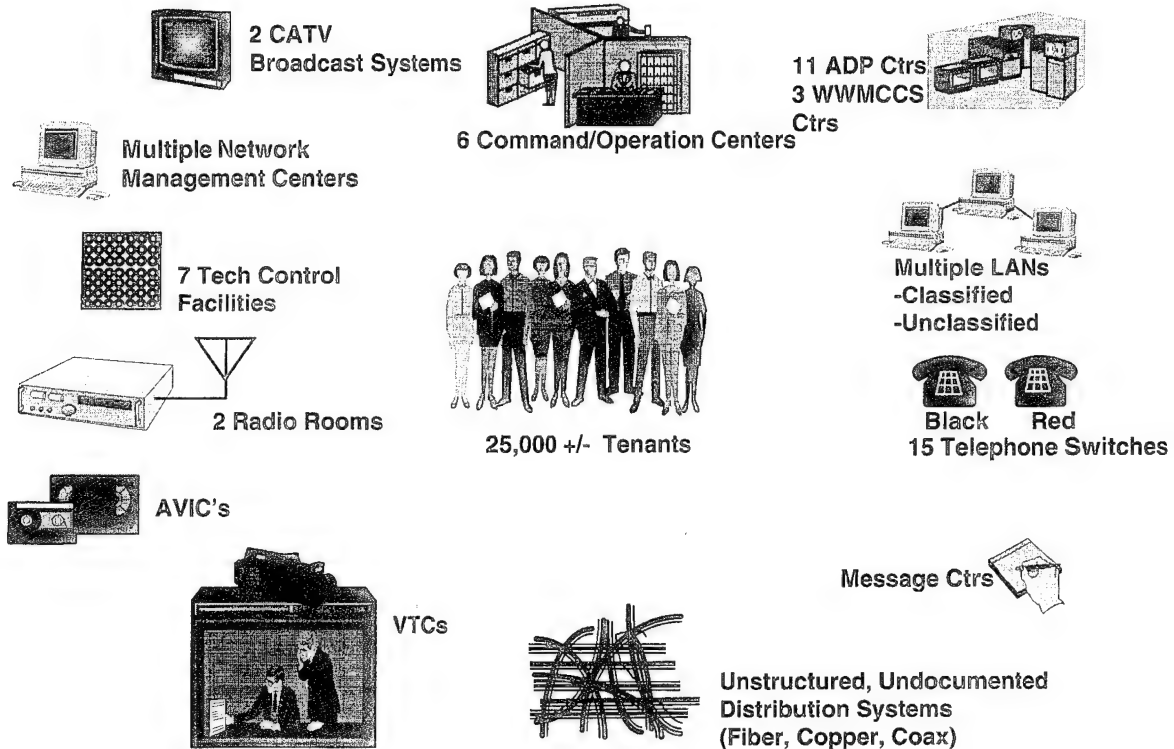
Current Pentagon IM&T (Cont'd)

Independent applications and services (Application Dependent Terminals)

Separate lines to independent terminals for alternative networks

Action Officer's Area

Video Teleconference Area

Switch

DDN E-Mail Connection

Modem

Telecommunications Center Connections

Manual filing

Modem Pool

To Outside Telecommunications Services (e.g., Internet E-Mail, FTS2000, WITS)

Separate voice lines Public/FTS2000 / DSN

- Independently procured and non-interoperable systems and services
- Different interfaces to access information data bases (both electronic and manual)
- Telecommunications access arrangements vary by organization
- Most record communications provided by over the counter (OTC) or pneumatic tubes
- Video teleconference arrangements arranged independently and may not interoperate (e.g. , Rembrandt vs PictureTel CODECs)
- Cabling infrastructure inadequate, static and not centrally managed

It works, but it's costly, inefficient, and inflexible.

Legend:
WITS - Washington Interagency Telecommunications System
DSN - Defense Switched Network
DDN - Defense Data Network
FTS2000 - Federal Telecommunications System 2000
ISDN - Integrated Services Digital Network

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Projected IM&T Requirements

Video Camera →

➪ **Management's Perspective**

- ◆ Single Agency Network Management Control
- ◆ Reconfigurable
- ◆ Scaleable
- ◆ Fault Tolerant
- ◆ Cost Effective
- ◆ Standard Compliant

➪ **User's Perspective**

- ◆ Easy to Use
- ◆ Single Integrated Service Workstations
- ◆ Multimedia Access

Applications

Services Demand

MultiMedia

High Performance Data (100Mbps - 1 Gbps)

Voice, Video, Data

1992   2001 +   Time

ADP Access	CNN
Secure Ops/ MLS	DISN FTS2010 CMMCL
Video Teleconf.	HD Video Application

| Application 1 | Application 4 | |
| Application 2 | Application 3 | Application 5 | NSF NET | Network Mgmt |

Speaker Phone →

MLS Access

IM&T Functional Products

Swing Space

NSMC

Telephone Switches

MPOP

DISN/ WAWS

Red/Black Backbone

ADP Centers

External Users

Tech Control

External Users

External Users

MPOP

External Users

Command Centers

108
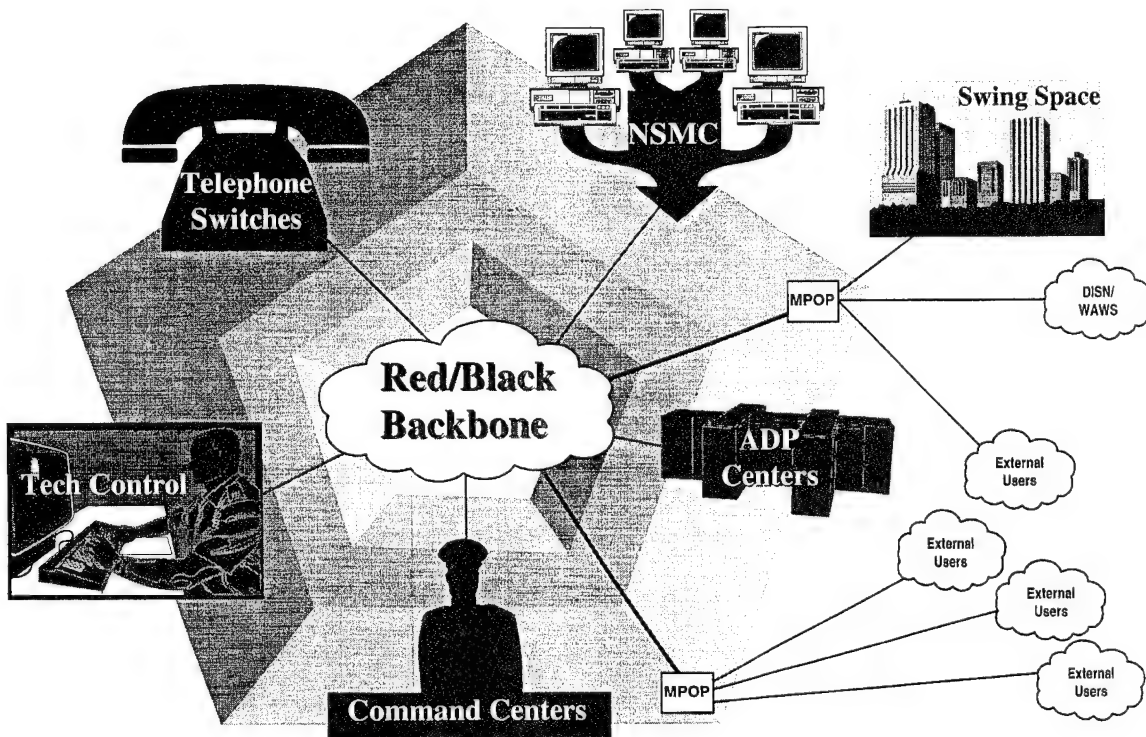
Communications Backbones

⇨ **Unclassified/Classified Backbone Design**
- ◇ Structured Wiring/Physical Infrastructure
  - ➤ Meets Federal and Commercial Standards
  - ➤ Accommodates Growth
  - ➤ Technology Independent
- ◇ Supports Legacy Systems
- ◇ Supports Current and Future Technology
  - ➤ Integrated Voice, Data, Video
  - ➤ Multimedia
  - ➤ Prepares for Multi-Level Security/Defense Message System

Logical Ph I Backbone Architecture
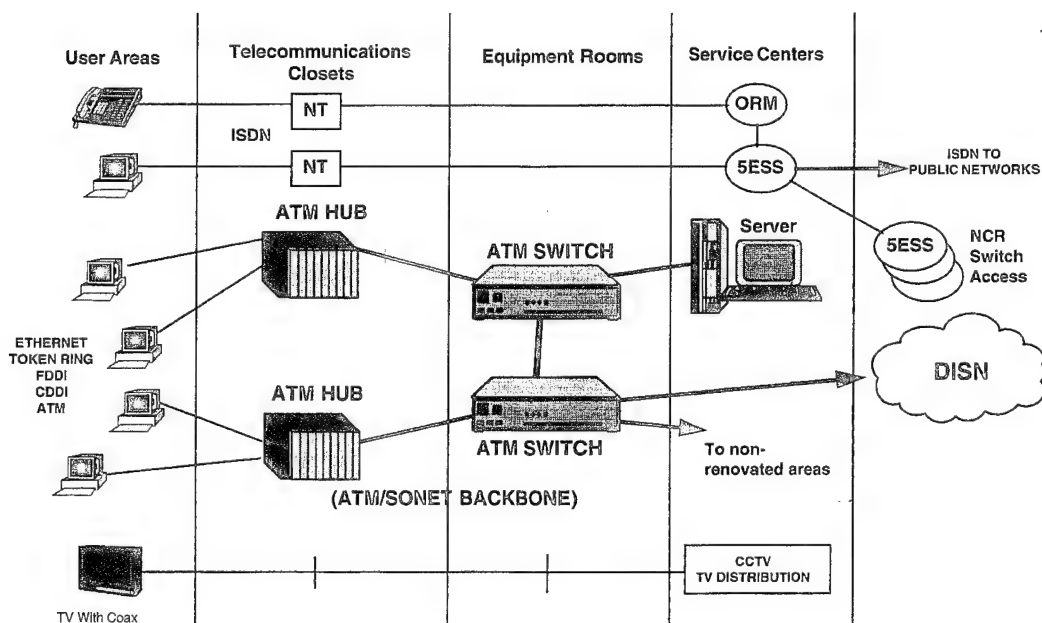
Logical Final Backbone Architecture
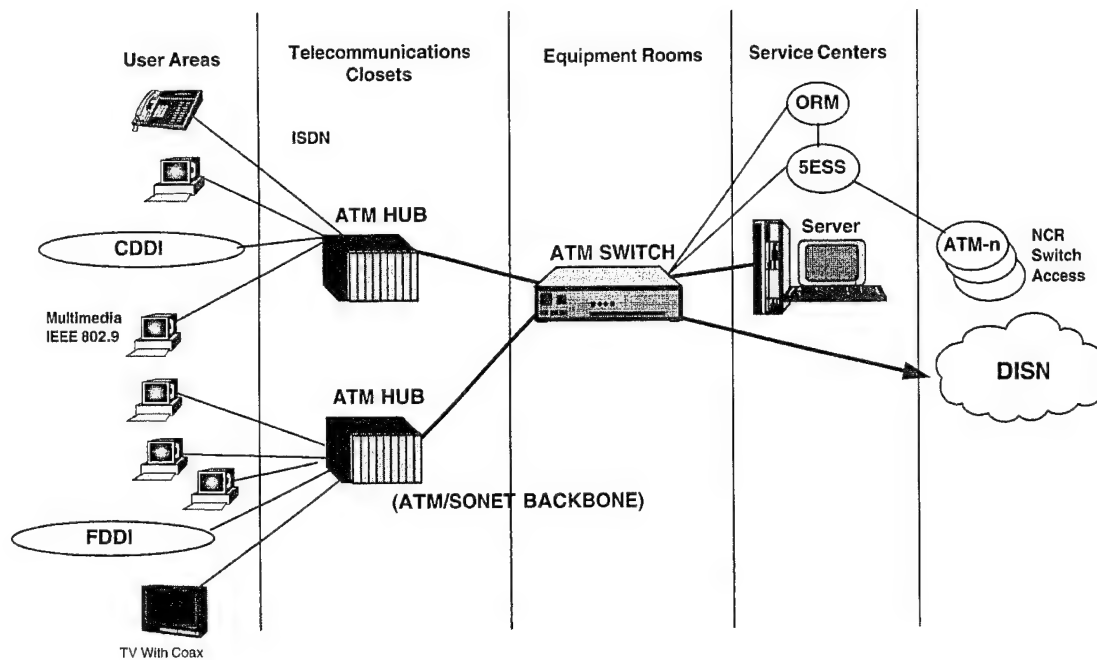
IM&T Functional Products
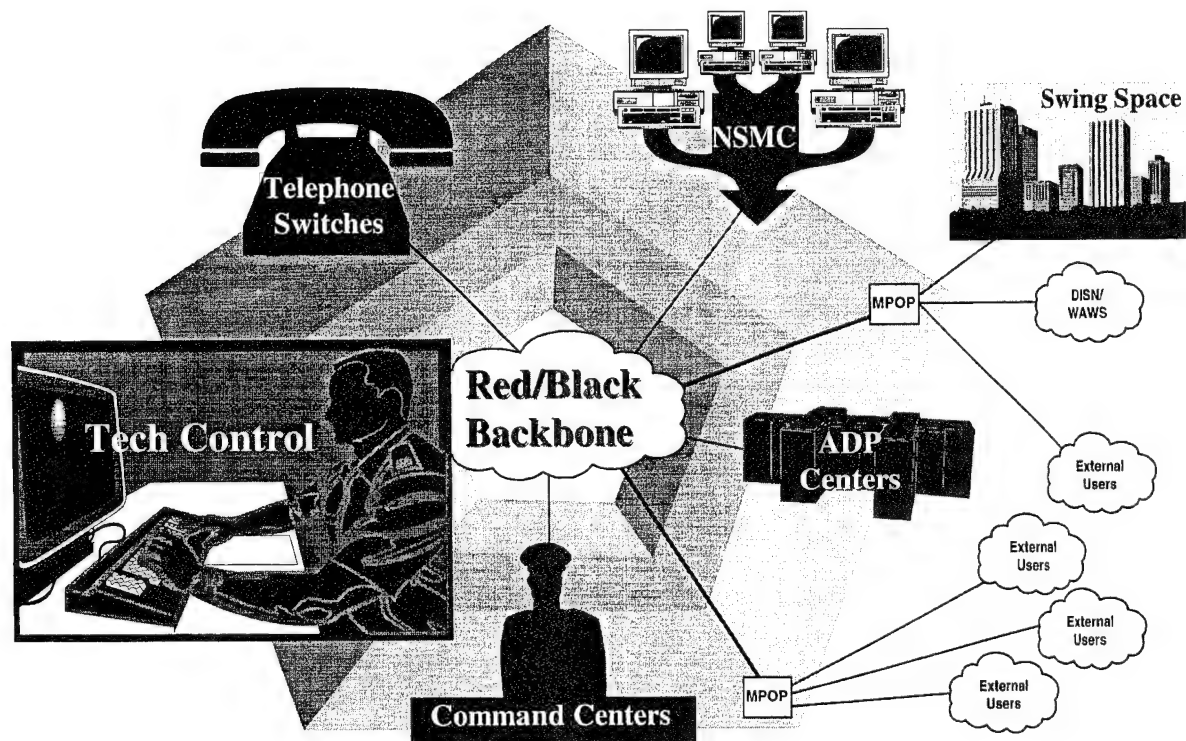
Pentagon Technical Control Facility Consolidation

Present

ARMY TCF

ARMY AOC

AF TCF

ARMY NMC

DIA TCF

AF NETWORK
CONTROL
CENTER

NAVY VOICE
COMMUNICATIONS

Future

PCTCF

IM&T Functional Products

Telephone
Switches

NSMC

Swing Space

MPOP

DISN/
WAWS

Red/Black
Backbone

ADP
Centers

External
Users

Tech Control

External
Users

External
Users

Command Centers

MPOP

External
Users

111
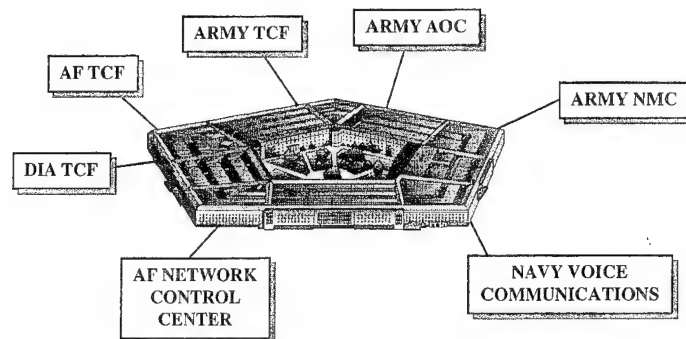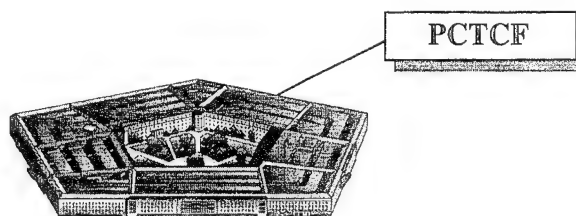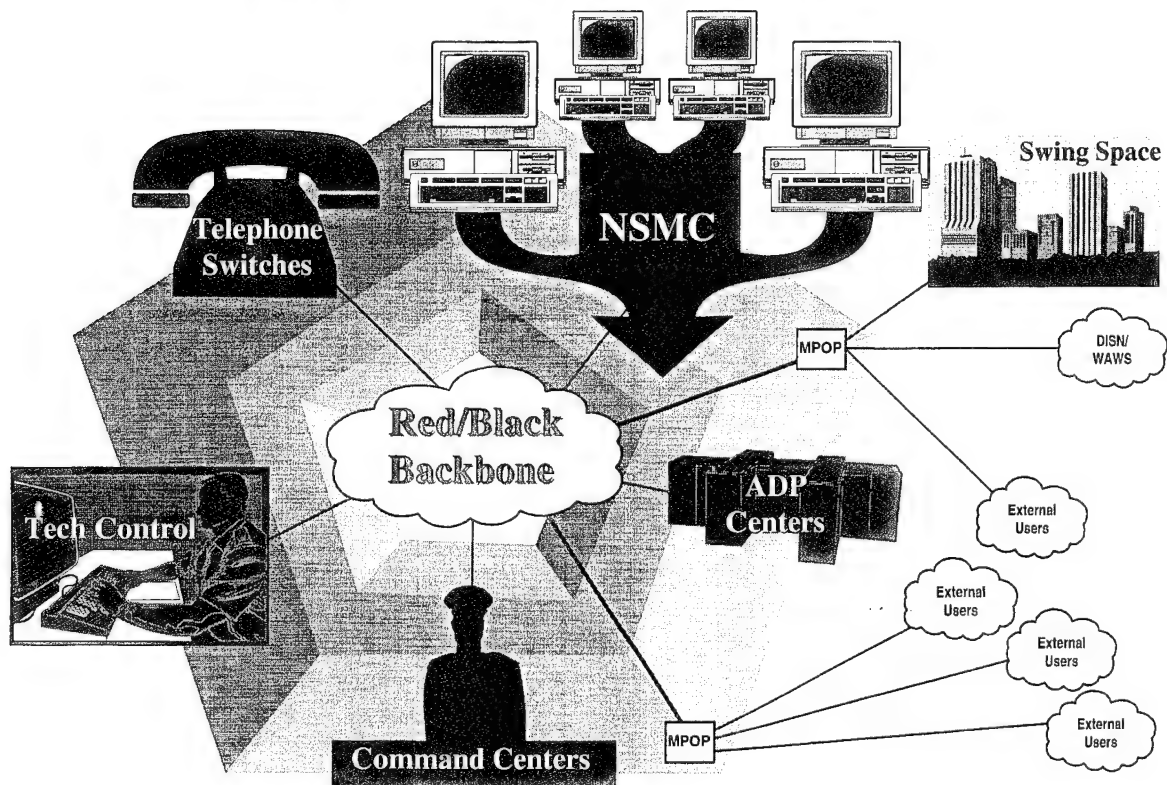
Network & Systems Management Center
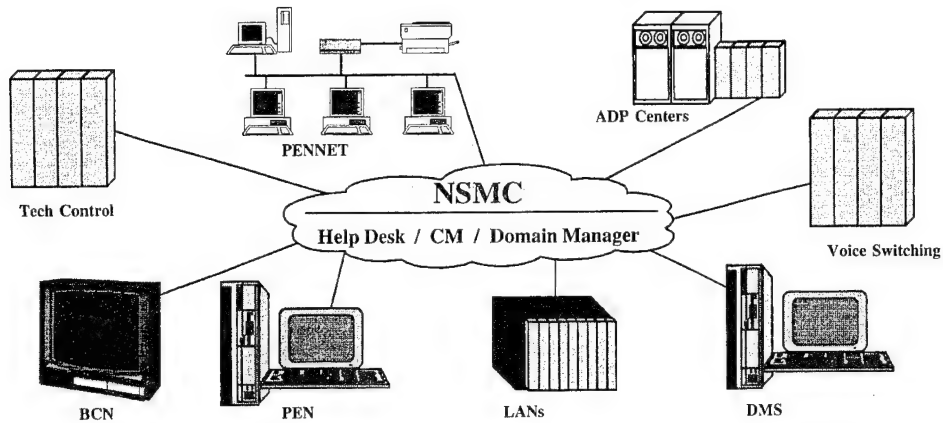
⇨ **Proactive Management of the Network Through:**

- ◆ Fault Detection and Isolation
- ◆ Configuration Management
- ◆ Accounting/Billing
- ◆ Performance
- ◆ Security

IM&T Functional Products
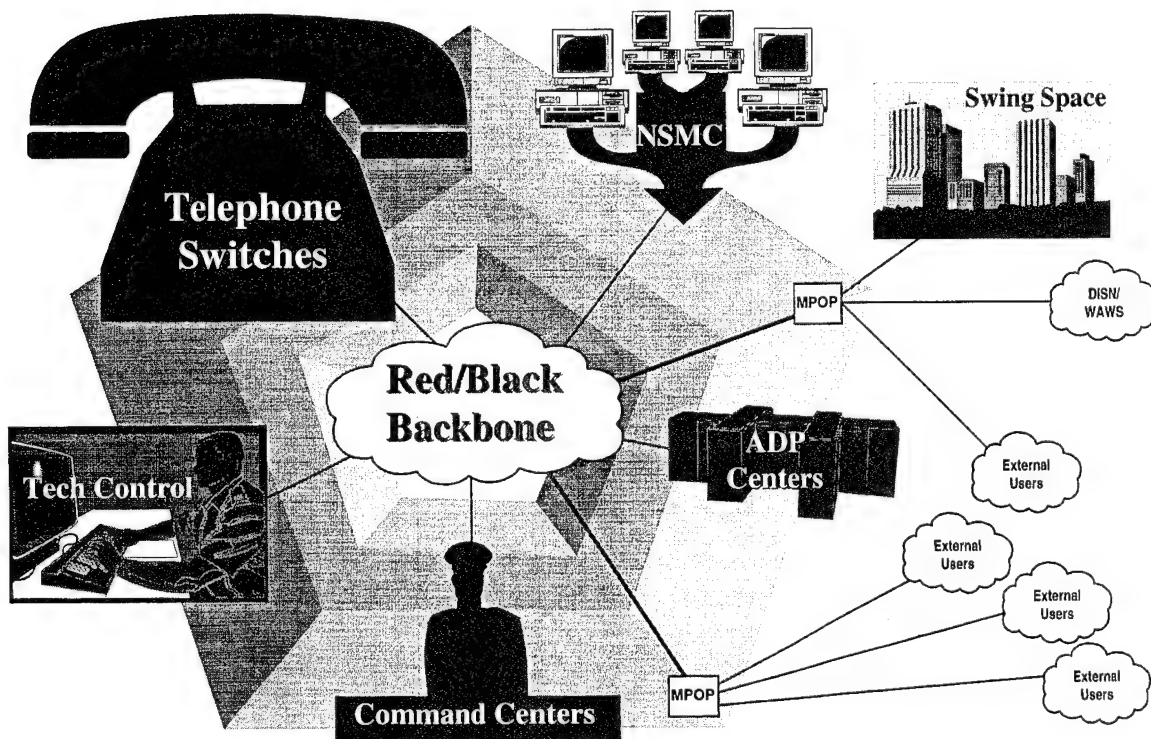
Switch Facility Locations

FY93 Baseline

- Pentagon Red (Electrospace SDS-1)
- WWSVCS (FTC-48/GTE)
- OSD CCC Red Switch (Electrospace RSU-1)
- OSD CCC Black (Electrospace RSU-1)
- NMCC HEMP FCS (Electrospace DSS)
- CENTREX (AT&T #1ESS)
- Navy Red (NRCS) (Electrospace RSU-1)
- WASHTAC (NTI MSL-100)
- Army Tactical (AT&T System 85)
- Army EAC (AT&T DCSS)
- NMCC EAC (WECO 304 CDS)
- AFOSC EAC (WECO 304 CDS)
- Navy Black (NTTS) (Electrospace SDS-1)
- USMC FOB-2 (NTI Meridian-1)
- AUTOSEVOCOM (WECO 758C)

FY01 Consolidation

- Primary Red / Primary Black / Primary C2 Switch Room
- Secondary Red / Secondary Black / Secondary C2 Switch Room / Basement Ph. 2
- 5ESS/ORM / Air Force DCSS / Army DCSS / General Purpose Switch Room
- NMCC HEMP FCS / HEMP Facility Switch Room

IM&T Functional Products

- Telephone Switches
- NSMC
- Swing Space
- Red/Black Backbone
- MPOP
- DISN/WAWS
- External Users
- Tech Control
- ADP Centers
- Command Centers
- MPOP
- External Users

ADP Centers

C² ADP

DISA (JSSC) → **Basement Phase I** ← **Air Force**

- Collocate two facilities
- Home for Global Command and Control System

Existing AOC → **New AOC Location**

- Army C² ADP remains in AOC

Business ADP

ISC-P → **Center I (Basement Segment I)** ← **DSS-W**

DTS-W → **Center I (Basement Segment I)** ← **Navy**

AFCAA → **Center II (Basement Segment II)** ← **Marine Corps**

DISA/AF → **Center II (Basement Segment II)** ← **WHS**

← **BMD**

- Collocate 9 ADP Centers into 2
- Directed by Executive Committee

IM&T Functional Products

Telephone Switches

NSMC

Swing Space

Red/Black Backbone

Tech Control

ADP Centers

MPOP — **DISN/ WAWS**

External Users

External Users

External Users

External Users

MPOP

Command Centers

114

Command Center Relocation Requirements

☞ Pentagon Renovation Cannot Impair
Command/Operational Center Mission Requirements
  ◇ Parallel Operations Requirement
  ◇ Pneumatic Tube System Requirement

☞ Command/Operations Centers Cannot Move to Swing Space

☞ Stringent Security Requirements

☞ Integrate With Ongoing JS and Service Programs Like
GCCS, DMS Etc.

☞ HEMP Protection Requirement

Summary

☞ IM&T Renovation will:
  ◇ Support a Modern Office Environment
  ◇ Provide Enabling Architecture to Maximize Benefits of Future
Technologies
  ◇ Maximize Consolidation of Services and Other Economic
Efficiencies
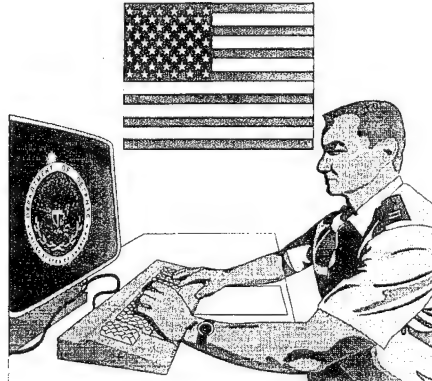
Telecommunications Architecture

� Requirement

- ◆ Description: The PM IM&T anticipates the need to develop a contract to provide integration and implementation services that include the engineering, furnishment, installation, and testing (EFI&T) of the IM&T telecommunications architecture in the renovated Pentagon. The vendor will be required to provide a proposal that will describe how they will EFI&T both active and passive telecommunications components. Provide qualified personnel to perform tasks in both classified and unclassified environments. The PM intends to offer a base contract that will implement Wedge 1 with a government option on the following four wedges.
  Detailed description will be provided in the Statement of Work.
- ◆ Time Frame: 2QFY97
- ◆ Point of Contact: Ms. Weida Borkowski, (703) 607-9016

Video 1

➤ Requirement

- ◆ Description: The PM IM&T anticipates the need to develop a contract to provide integration and implementation services that include the engineering, furnishment, installation, and testing (EFI&T) of the relocation of the video teleconferencing centers from the unrenovated to the renovated Pentagon. The vendor will be required to perform site surveys of in place and new VTC sites, develop designs and procure the equipment and software to relocate VTCs and assist in any integration with the IM&T telecommunications infrastructure. Detailed description will be provided in the Statement of Work.
- ◆ Time Frame: 1QFY97
- ◆ Point of Contact: Ms. Weida Borkowski, (703) 607-9016

Business ADP #2

⇨ Requirement

  ◇ Description: The PM IM&T anticipates the need to develop a
    contract to provide integration and implementation services
    that include the engineering, furnishment, installation, and
    testing (EFI&T) of the relocation of various existing business
    ADP centers to a consolidated ADP center in the basement of
    the Pentagon. The vendor will be required to perform site
    surveys, develop designs and procure equipment required to
    relocate these in place system. The vendor will also be required
    to assist in the integration of the relocated systems with the
    IM&T telecommunications infrastructure.
    Detailed description will be provided in the Statement of Work.

  ◇ Time Frame: 4QFY97

  ◇ Point of Contact: Ms. Weida Borkowski, (703) 607-9016

White House
Communications Agency
Our Future Vision

*An elite team in relentless pursuit of
providing premier worldwide
telecommunications for the Presidency*

Our Mission

Install, operate, & maintain worldwide
voice, data, & audio-visual systems
for the
President
Vice President
White House Staff
U.S. Secret Service
National Security Council

1

Future Vision

- Based on Architecture plan
  - Baseline
  - Technology Assessment
  - Transition Plan
- Summarized in 5 long-term themes

Integrate voice, data, video, & image services on the desktop

- Securely assessable
- Wireline & wireless connectivity
- Fixed, travel, & residential locations
- Growth of video conferencing

2

Integrate cellular, radio, & paging services in a single mobile device

- Hand held
- Configurable for:
  - CONUS
  - Worldwide
- Potential E-mail platform

Unified Backbone Network

- Bandwidth -on-demand
- Pipeline for all telecommunications services
- Multi-level secure
- Redundant paths

3

Integrated Network Management System

- Manage all network assets & end devices
- Network Management Roles:
    - Fault Mgmt
    - Configuration Mgmt
    - Security Mgmt
    - Performance Mgmt
    - Accounting Mgmt
- Highly reliable
- Outages transparent to the customer

Flexible Application Environment

- Rapid development
- Prototypes
- COTS & GOTS products
- Corporate database environment

4

The WHCA Future Vision

- Integrated services to the desktop
- Integrated services 'on-the-belt'
- Unified backbone network
- Integrated network management system
- Flexible application environment

?

Questions

?

5

USAISC Mission

USAISC

★ Provide information systems and network management to the Army.

★ Maintain Army's portion of the Defense Communications System (DCS) and Army warfighter support.

★ Assess and develop requirements for sustaining base information systems; provide technical support to PEO.

★ Materiel developer for information systems. Plan, engineer, acquire, install, test, operate and maintain Army systems.

★ Exercise training and readiness oversight and wartime technical C2 of National Guard and US Army Reserve EAC Signal units.
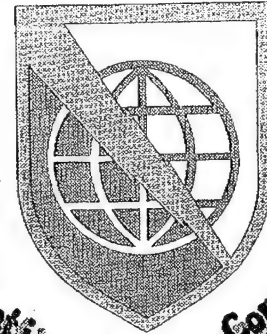
Information Systems Command

11/29/95 8:12 AM

LTC Bill Holmes/DSN 879-0719
CG_Gordn.ppt

1

USAISC

Army Signal Command Mission

Train and maintain a combat-ready, worldwide deployable Signal force to support warfighting CINCs in the execution of joint and combined operations across the spectrum of conflict. Sustain and protect C4 systems and personnel. Assist in the reception, staging, onward movement and integration of reinforcing Signal forces for the warfighting CINCs. Execute sustaining base, strategic and theater tactical C4 systems integration with all components, defense agencies and NGOs.

F O R C E

XXI

11/29/95 8:12 AM

LTC Bill Holmes/DSN 879-0719
CG_Gordn.ppt

2

ISC Transition FY89-96

ISC Around the World Today
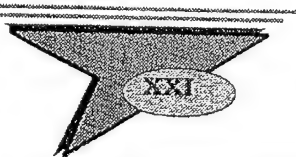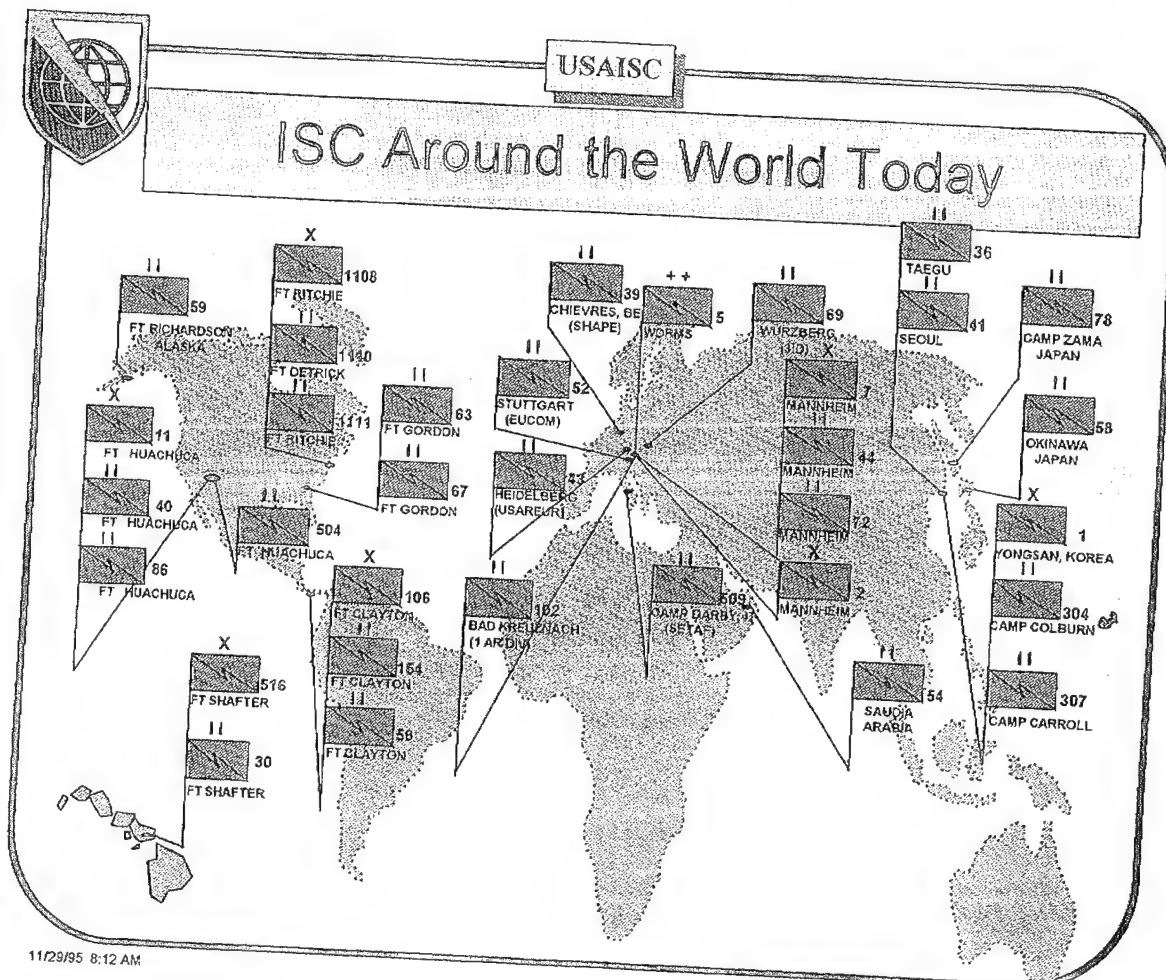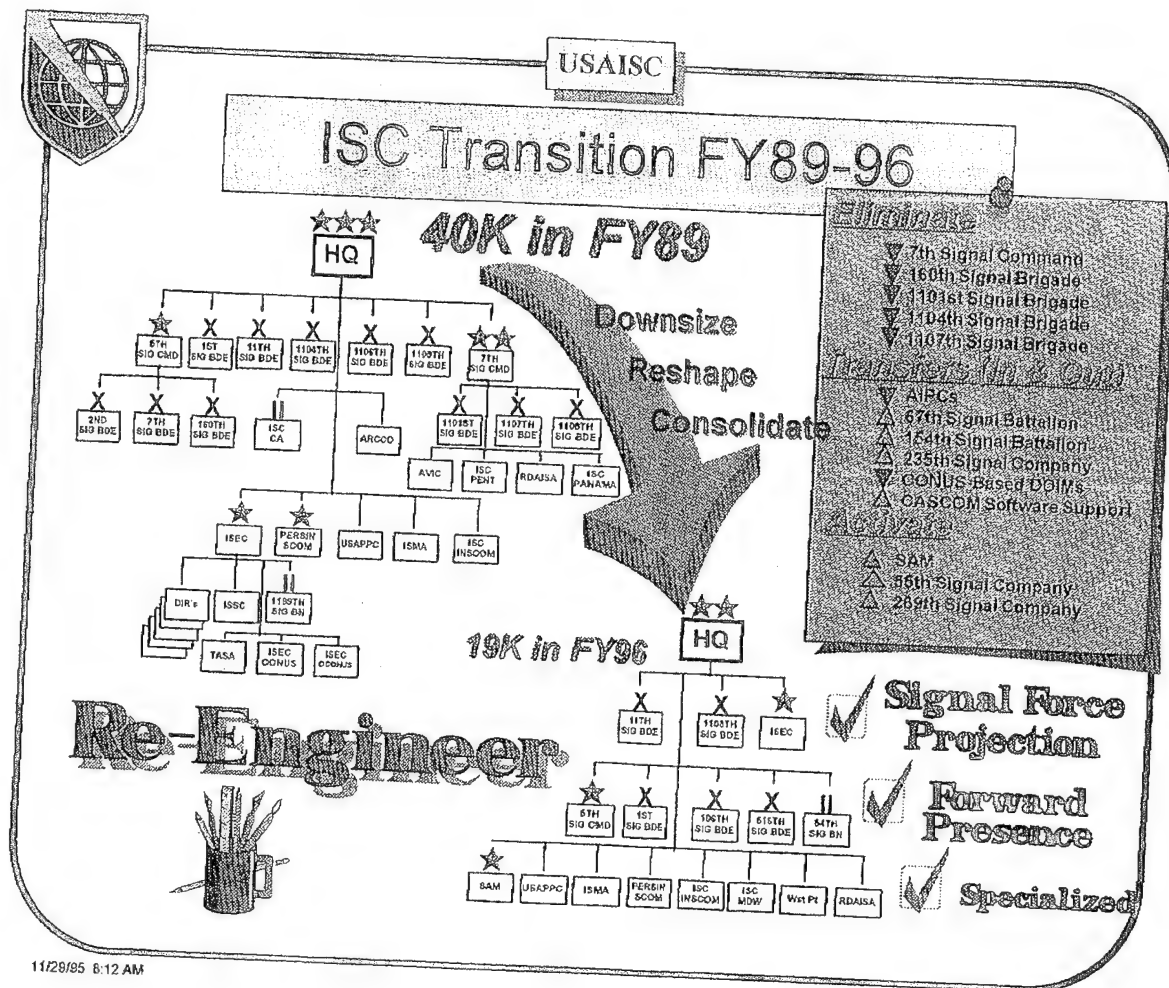
Army's Executive Agent for the Defense Communications System

Defense Satellite Communications System

Defense Switched Network
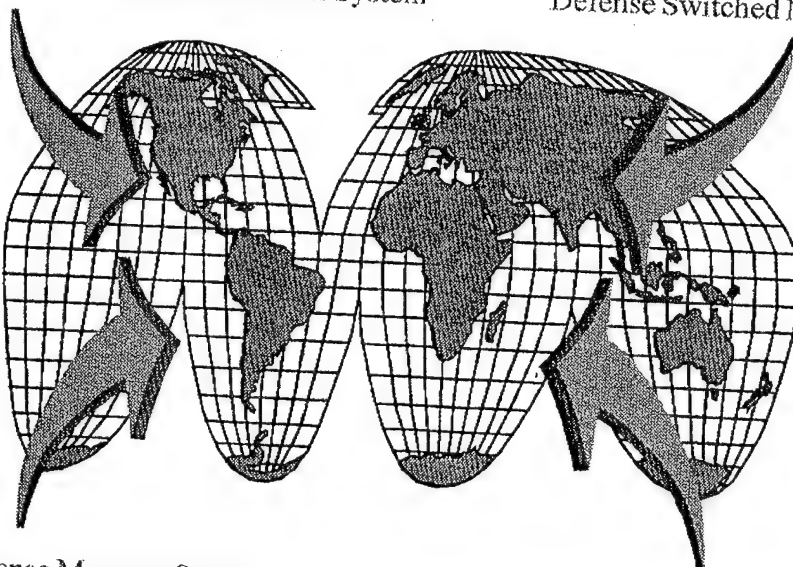
Defense Message System

Defense Red Switch Network

11/29/95 8:12 AM

NCA/CINC Support

SAM
SECDEF/JCS/SA/UNDER SA/
CSA/VCSA/DAS/
FLY-AWAY SPT--HAWAII

39TH SIG BN
SACEUR/NATO

HQS 5TH
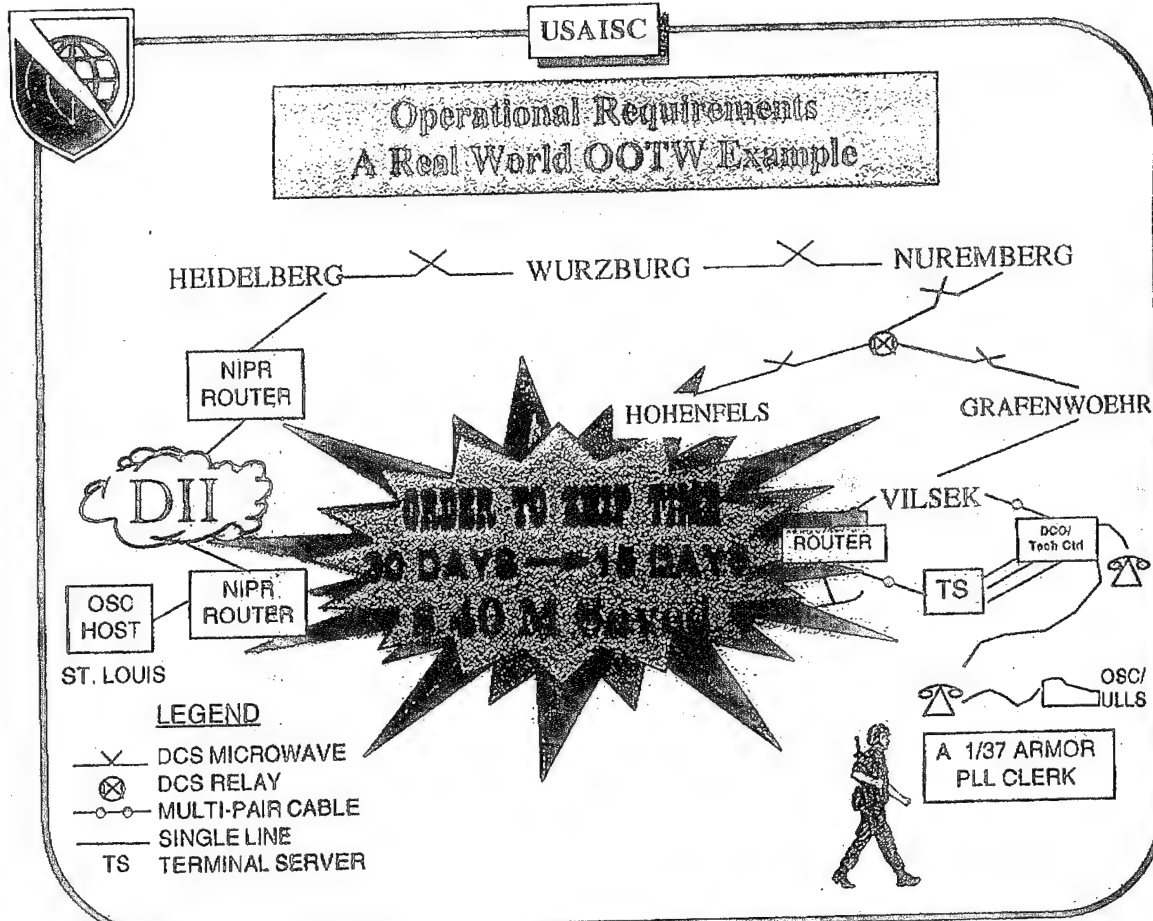CINCUSAREUR

54TH SIG BN
CINCCENT/ARCENT

1111TH SIG BN
NMCC-SITE R

362D SIG CO
CINCUNC/EUSA

154TH SIG BN
CINCSOUTH USARSO

52D SIG BN
SOCEUR/
DCINCEUCOM

11TH SIG BDE
SUPPORT TO ARMY
COMPONENT CDRS

11/29/95 8:12 AM

126

Operational Requirements
A Real World OOTW Example

HEIDELBERG — WURZBURG — NUREMBERG

NIPR ROUTER

HOHENFELS

GRAFENWOEHR

DII

VILSEK

ROUTER

DCO/ Tech Ctrl

TS

OSC HOST

NIPR ROUTER

ORDER TO NET THE
30 DAYS — 15 DAYS
5 10 N Cancel

ST. LOUIS

OSC/ ULLS

LEGEND

✕	DCS MICROWAVE
⊗	DCS RELAY
—o—o—	MULTI-PAIR CABLE
—	SINGLE LINE
TS	TERMINAL SERVER

A 1/37 ARMOR PLL CLERK

LTC Bill Holmes/DSN 879-0719
11SepBoD.ppt

31

10/3/95 1:59 PM

Operational Requirements
A European Example

ZAGREB, CROATIA

DPI

NATO LOCE HOST

AMME (DIN)

TSC-85B

☎ DSN LL
UGC-144
DINAH
LOCE

DCO

TTC-39D

TSC-85B

LEN

Kaiserslautern

ROUTER

DCO/ Tech Ctrl

EMH2

WARRIOR HOST

DCO   VINCENZA

SKOPJE, MACEDONIA

DII

TSC-93B

TTAs   OSC/ULLS ELS

ASC   PIRMASENS

DIN

SEN   ☎ TAC

OSC HOST

NIPR ROUTER

AUTODIN SW CH

DSN

WARRIOR (TPN)

ST. LOUIS

AUTODIN TARE

BAUMHOLDER

TARE

UGC-144 (DIN)

DINAH (DIN)

WEST STAR BUNKER

DAL MOLINE AIR FORCE BASE

LOCE

LEGEND

✕	TACTICAL SHF
✕	DCS MICROWAVE
—o—o—	MULTI-PAIR CABLE

LTC Bill Holmes/DSN 879-0719
11SepBoD.ppt

32

10/3/95 1:59 PM

Power Projection C4 Infrastructure Program
ARMY INSTALLATIONS ARE POWER PROJECTION PLATFORMS

SUSTAINING MATERIEL

OPERATING FORCE

SUPPORTING MATERIEL

INDIVIDUAL REPLACEMENTS

INFORMATION MANAGEMENT

POWER PROJECTION
MISSIONS OF
ARMY INSTALLATIONS

11/29/95 8:12 AM

LTC Bill Holmes/DSN 879-0719
OG_Gordn.ppt

9
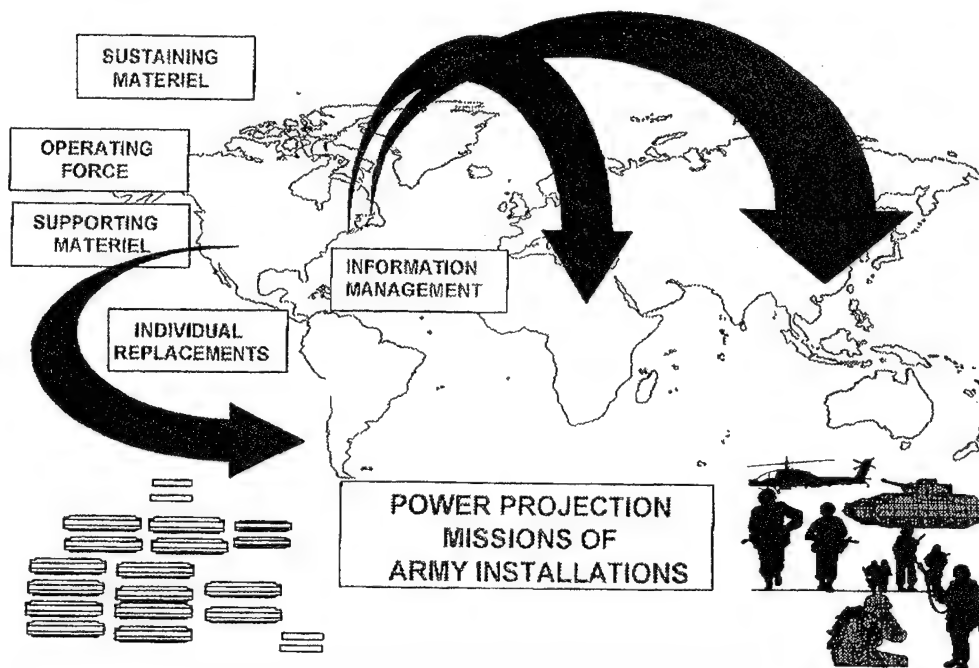
Support from Industry
FY 94

$143 M

$127 M

$94 M

$45 M

- ADPE HW/SW
- Other HW
- ADPE/Tel Svcs
- Eng & Tech Svcs/O&M

TOTAL = $409M
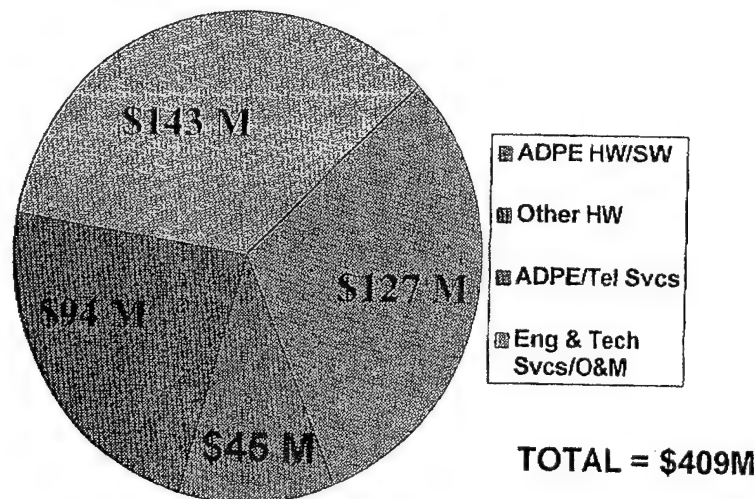
11/29/95 8:12 AM

LTC Bill Holmes/DSN 879-0719

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The Information Future in DoD

Dr. Anita K. Jones
Director, Defense Research & Engineering

1990's - The Decade of Information System Architecture

- Global Command & Control System (GCCS) Architecture
- Force XXI Architecture
- Technical Architecture Framework for Information Management
- High Level Architecture Modeling & Simulation
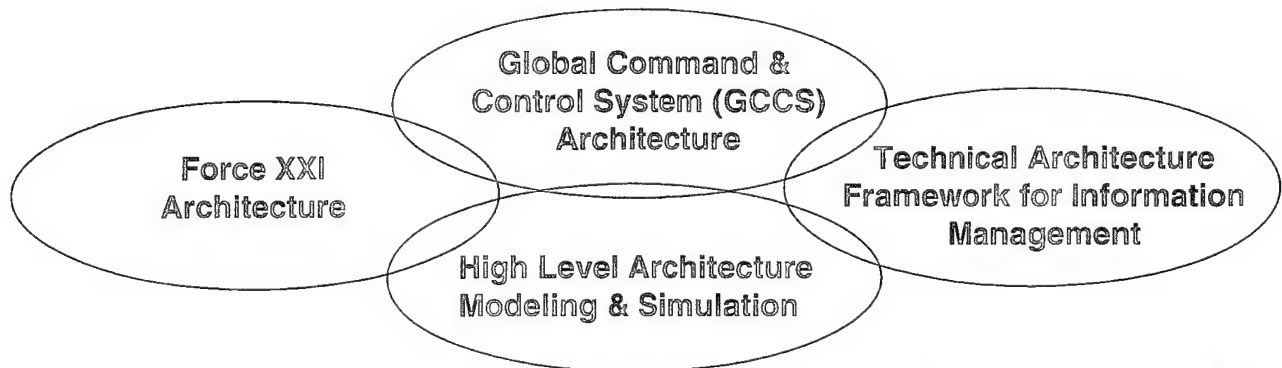
Vice: Stove Pipes of the 80's

Chart 2

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is moving so fast that DoD can ONLY KEEP CURRENT
by tracking/using commercial productization

Chart 3

Synergy of Commercial/Military Information Technology Development

- **Industry invests 4% of its R&D in long term research* ~$800M**

- **DoD/Government are the major source of science and technology funds ~$2.4B**

- **Commercial industry short term R&D (96%) dwarfs that of the government investment ~$19.2B**

* 6.1 + 6.2 equivalent

Chart 4

Long Term Investments Have Payoff

	1965	1970	1975	1980	1985	1990	1995

Timesharing

Networking

Reduced Instruction Set Architecture

Redundant Array of Inexpensive Disks

Parallel Computing

MicroElectro Mechanical Systems

Gov't Research ▨▨▨   **Industry R & D** ▤▤   **$1B business** ▨▨▨
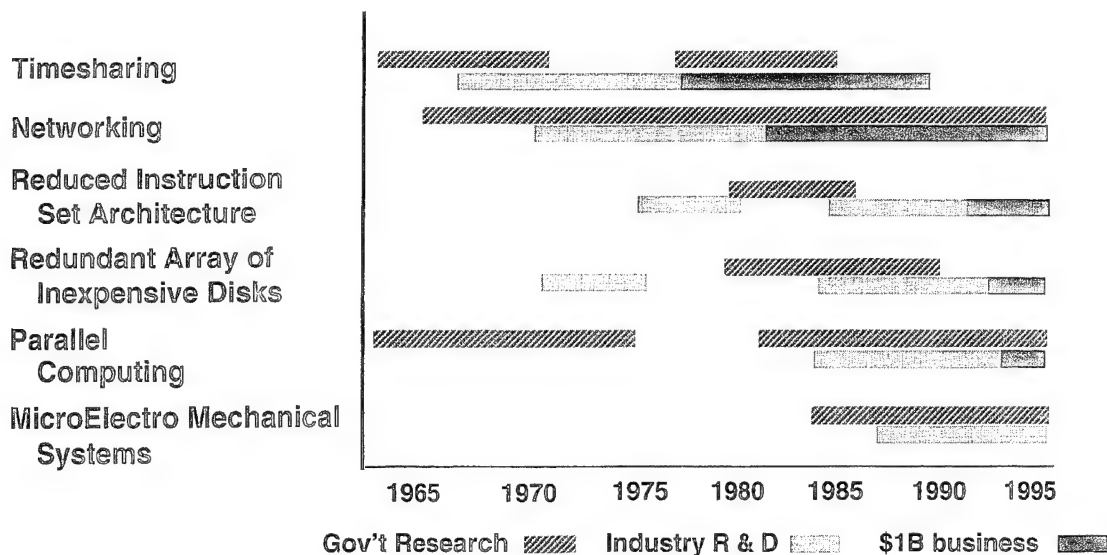
Note: Most examples taken from NRC Study, Evolving the HPCC Initiative t Support the Nation's Information Infrastructure

Chart 5

DoD Is The Dominant Investor in Critical Fields in the Technology Base (6.1 & 6.2)

	DoD Percentage of Federal Technology Base
Electrical Engineering	75%
Metallurgy & Materials	62%
Mechanical Engineering	59%
Computer Science	56%
Civil Engineering	45%
All Engineering	37%
Mathematics	28%
All Funding	**16%**

Source: NSF Federal Funds Report 94-328

Note - 6.1 & 6.2 Funding Only

Chart 6

Leveraging Commercial Technology

Military Advantage

Future Commercial Market

Commercial Market
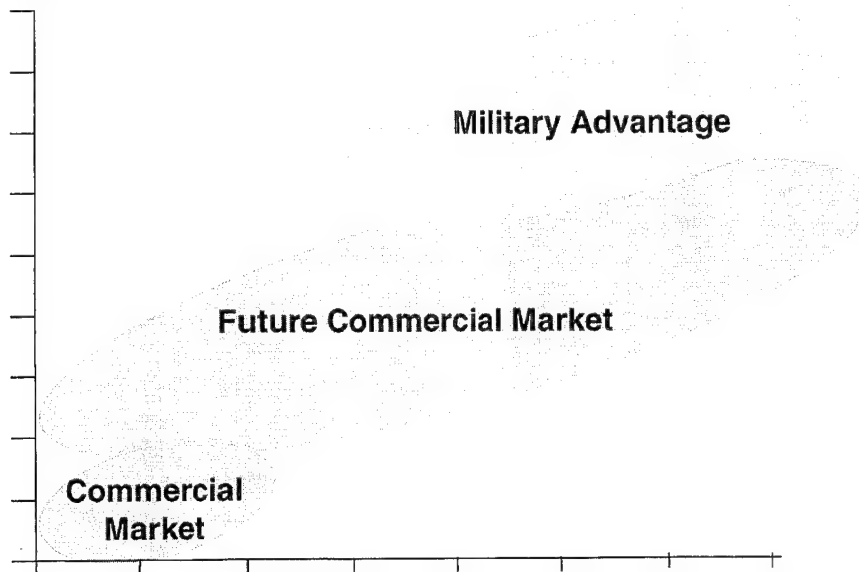
Chart 7

Technological Superiority Requires Being Years Ahead of Commercial State-of-the-Art

ADXL-50 - Accelerometer
DMD - Digital Mirror Device

Terabits/cm² data storage

inertial navigation

weapons, safing, arming and fuzing

DMD

displays

active conformal surfaces

fluidic systems

accelerometers

ADXL-50

Future MicroElectro Mechanical Systems (MEMS)

⭐ DoD Funded

◯ Current Market

◯ Near Term Market

◯ Military Market

Current Market MEMS devices

Number of Transistors: 10^1, 10^3, 10^5, 10^7, 10^9

Number of Mechanical Components: 10^1, 10^3, 10^5, 10^7

Chart 8

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Daddy Fought in the War

Chart 9

Post Year 2000: Dueling Radios
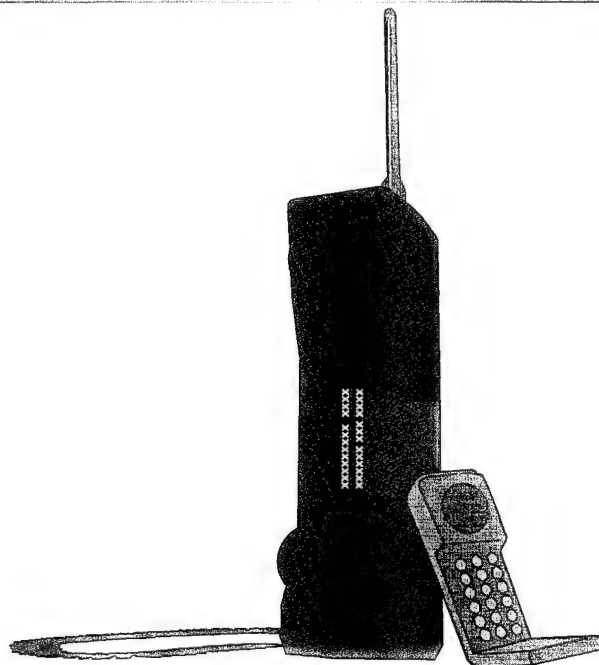
Chart 10

- Fiber (OC48) when you want/string it
- Wide-area, hundred channel broadcast
- Computing cheaply embedded in any object
- Wide, robust, secure message communications
- Multimedia near any user
- Commercial-Off-The-Shelf software applications of military interest

Low Risk
Affordable

Chart 11

Technology is Not the Challenge

The hard part is effective harnessing of information technology into military systems that matter - and that evolve competitively

Chart 12

cing the Force

MG Robert T. Howard
Deputy Assistant Secretary
of the Army for Budget

ASA (FM&C)

DEFENSE AS % OF FEDERAL BUDGET

FY96 - $1.6 TRILLION

ENTITLEMENT
PROGRAMS
50%
17% DEFENSE
16%
NET
INTEREST 1% DOMESTIC
PROGRAMS
FOREIGN
AFFAIRS

Source: Fiscal Year 1996 Budget of the United States

11/27/95 2:53 PM

135
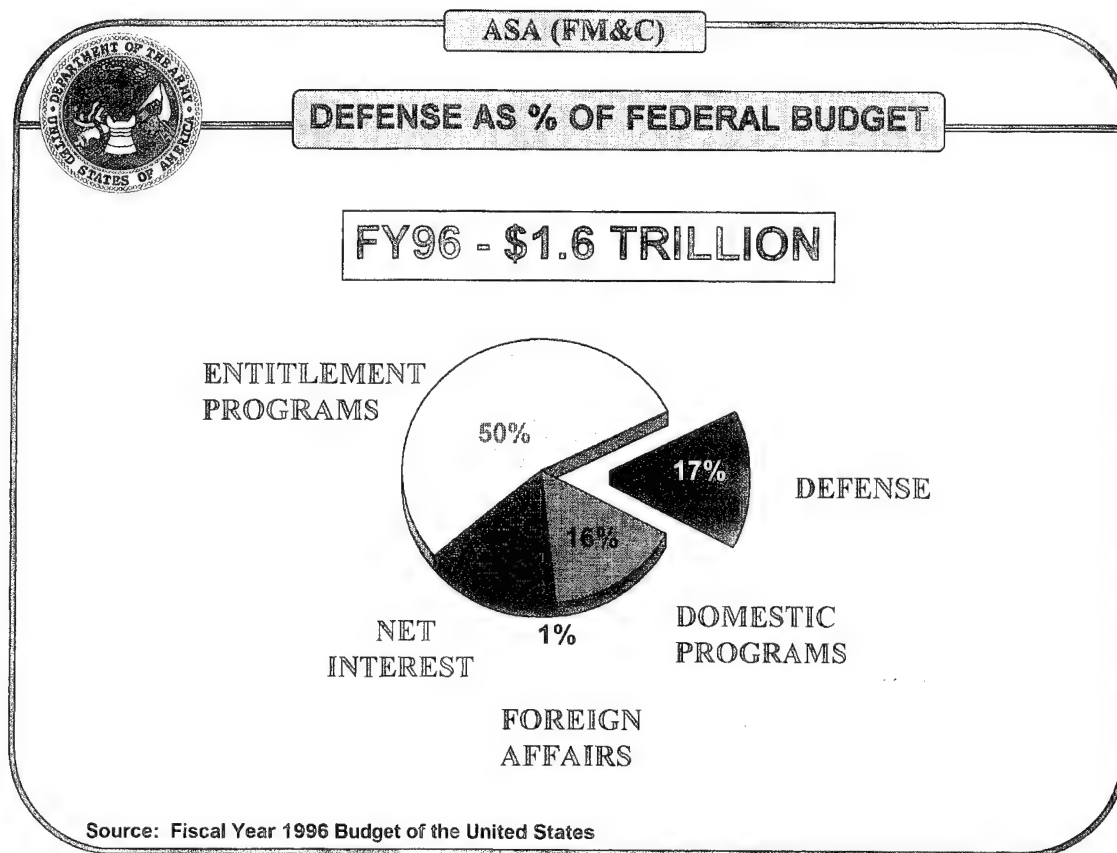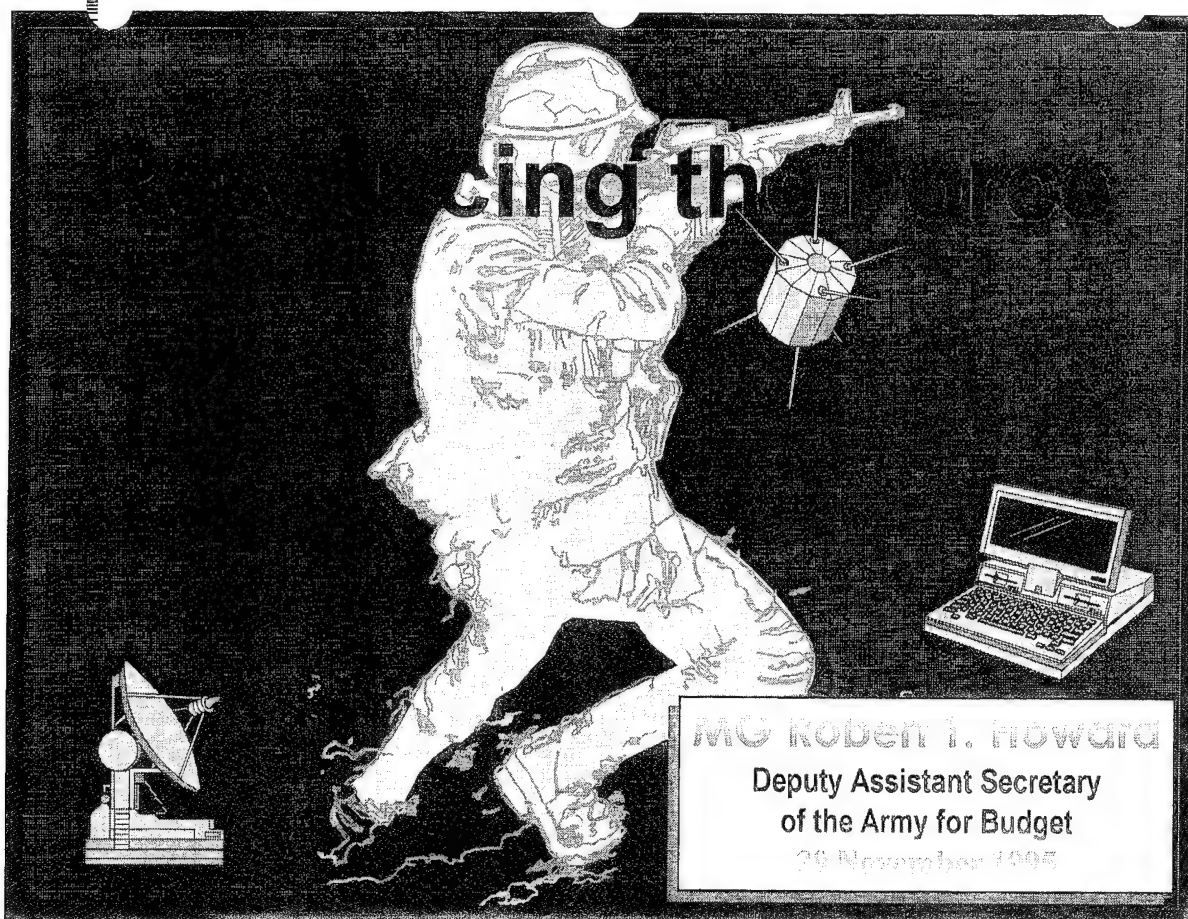
ARMY AS % OF THE DEFENSE BUDGET

NAVY &
MARINE
CORPS
29%

AIR FORCE
29%

FY96
DEFENSE BUDGET

17% ==

DEFENSE
AGENCIES
15%

ATOMIC ENERGY 4%

DEFENSE RELATED <1%

ARMY
22%

Army
$59.5B
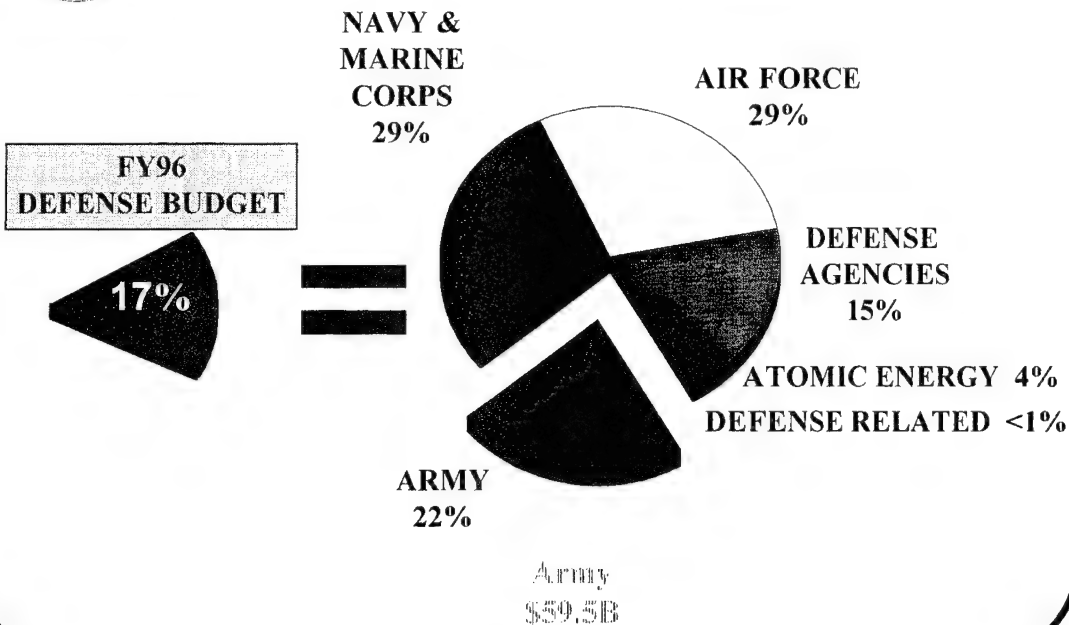
11/27/95 2:53 PM

FY95 HAD ITS CHALLENGES

- **Contingency Operations:**
  - **Supplemental Paid $805M**
  - **Costs Still Exceeded Emergency Supplemental**

and RDA remains severely underfunded

- **Military Pay Shortfall**
  - **Military Personnel Actions Taken:**
    - **Accelerated ETSs**
    - **Reduced Accessions, etc**
  - **OMNIBUS Reprogramming**
    - **Congress continued trend of NOT accepting RDA billpayers**
    - **OMA Depot Maint of $112M used to help solve MPA shortfall**
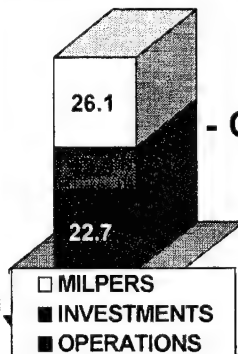
$61.8B

26.1

22.7

- ☐ MILPERS
- ■ INVESTMENTS
- ■ OPERATIONS

11/27/95 2:53 PM

FY96 FUNDING
"Finally...Help From Congress!"

CURRENT $B

APPROPRIATION	FY94	FY95	Pres Bud FY96	Congress Approp Marks
MILPERS	26.8	26.1	25.0	+ .1
O&M	19.1	21.2	21.6	+ .4
PROC	6.9	6.9	6.3	+1.7
RDTE	5.4	5.5	4.4	+ .4
MILCON	1.3	.8	.5	+ .3
AFH	1.3	1.2	1.4	+ .1
BRAC*	<.1	.1	.3	
TOTAL	60.9	61.8	59.5	+3.0
TRANSFERS & SUPPLEMENTALS	2.5	2.3		

* BRAC is a DOD Appropriation and not a portion of Army Appropriations during and after year of execution
(Numbers may not add due to rounding)

We are surviving from "year to year" fixing the "must fund" problems!!

11/27/95 2:53 PM

WHERE THE DOLLARS GO !!!

FY95

Other 3%
Travel 1%
Compensation 60%
Supplies 8%
Construction 2%
Misc. Contracts 11%
RDA (Less Pay) 16%

Major Items

Compensation	Civilian Pay	271 K
	Military Pay (Active)	510 K
	Military Pay (Reserve)	629 K

RDA (Less Pay):
- Abrams Tank Upgrade
- Bradley Fighting Vehicle Upgrade
- Apache Upgrade
- Kiowa Upgrade

Construction:

Army Family Housing:
New Construction - - $114.3 M
1,187 units

Improvements - - - - -$ 44.8 M
657 units

Military Construction:
Barracks - - - - $246 M / 12 projects
Strategic Mobility - - $65 M /
6 projects

TOTAL: $64 B

Other includes Army Family Housing (Opns) and Transportation

11/29/95 7:15 AM

INFORMATION TECHNOLOGY SYSTEMS BUDGET (ITSB)

ITSB INCLUDES:
- **ALL AUTOMATION (EXCEPT EXEMPTIONS LISTED BELOW)**
- **CIVILIAN AND MILITARY PAYROLL COSTS (PRINCIPAL DUTY IS AUTOMATION RELATED)**

ITSB DOES NOT INCLUDE:
- **CERTAIN COMMAND AND CONTROL SYSTEMS (AGCCS)***
- **TACTICAL SYSTEMS (MCS)****
- **EMBEDDED AUTOMATION IN WEAPONS SYSTEMS**
- **RADAR, TELEVISION, RADIO**

* **AGCCS - ARMY GLOBAL COMMAND & CONTROL SYSTEM**
** **MCS - MANEUVER CONTROL SYSTEM**

11/29/95 7:16 AM

Information Technology Systems Budget FY 95 (Functional Area)

Human Resources

Info Management

Cmd & Control

Other* $56 M

$114 M

Science & Tech $45 M

$223 M

$1,116 M

Reserve Affairs

TOTAL $1,808 M

Logistics
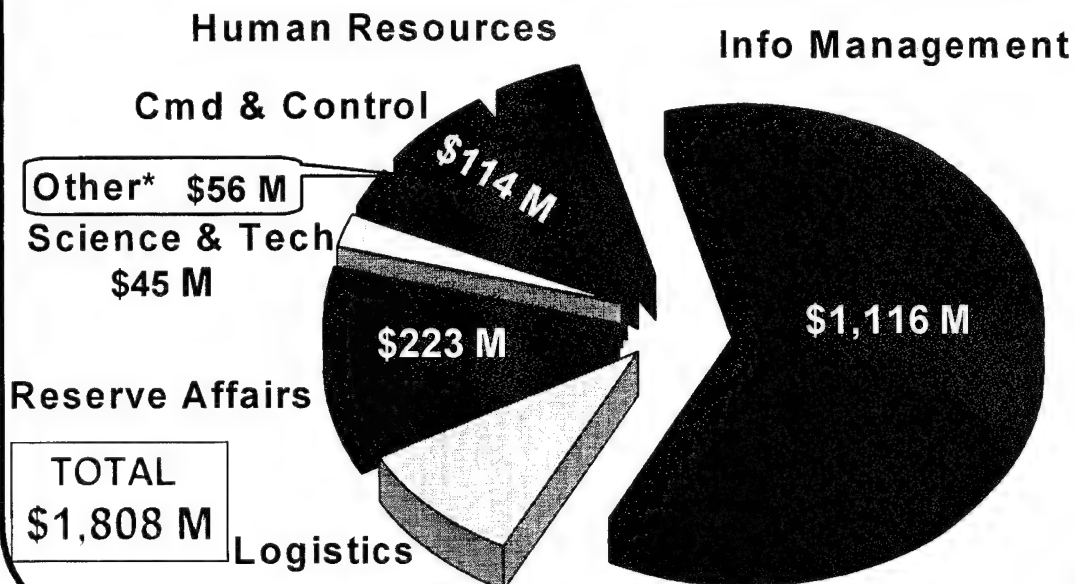
* Other includes Finance, Health, Intelligence, Policy, Procurement, System Acquisition Mgnt and Other Special Staff.

11/29/95 7:16 AM
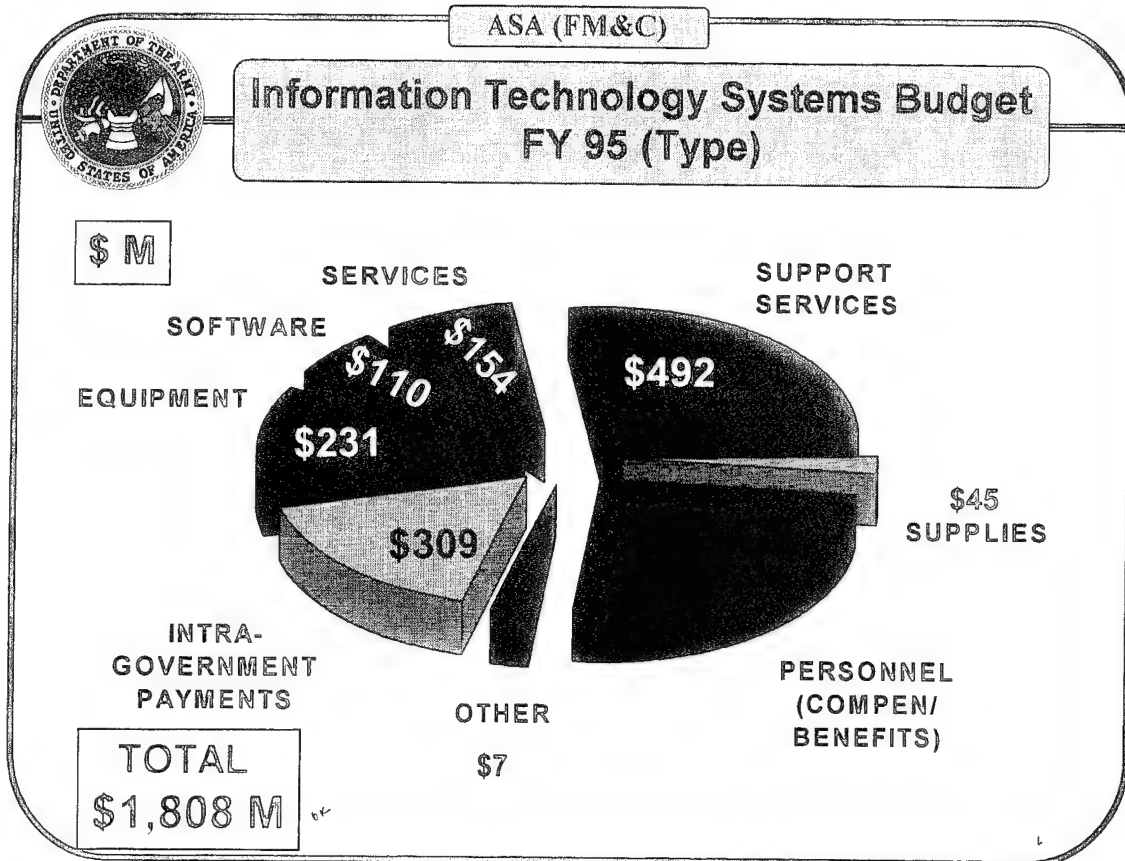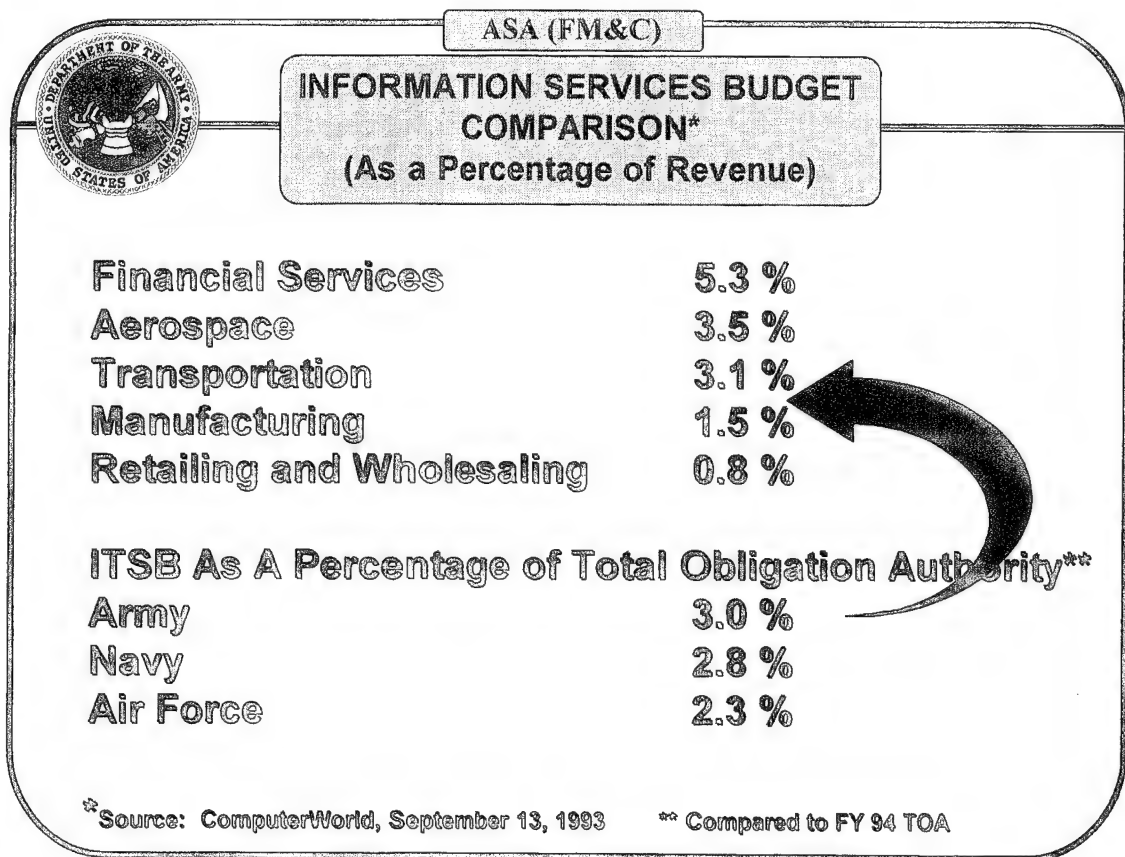
Information Technology Systems Budget
FY 95 (Type)

$ M

SERVICES

SOFTWARE

EQUIPMENT

SUPPORT SERVICES

$110

$154

$492

$231

$309

$45 SUPPLIES

INTRA-GOVERNMENT PAYMENTS

OTHER
$7

PERSONNEL (COMPEN/ BENEFITS)

TOTAL
$1,808 M

11/28/95 3:15 PM

INFORMATION SERVICES BUDGET COMPARISON*
(As a Percentage of Revenue)

Financial Services	5.3 %
Aerospace	3.5 %
Transportation	3.1 %
Manufacturing	1.5 %
Retailing and Wholesaling	0.8 %

ITSB As A Percentage of Total Obligation Authority**

Army	3.0 %
Navy	2.8 %
Air Force	2.3 %

*Source: ComputerWorld, September 13, 1993   ** Compared to FY 94 TOA

11/29/95 7:24 AM

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Defense Finance and Accounting Service

Defense Finance and Accounting Service
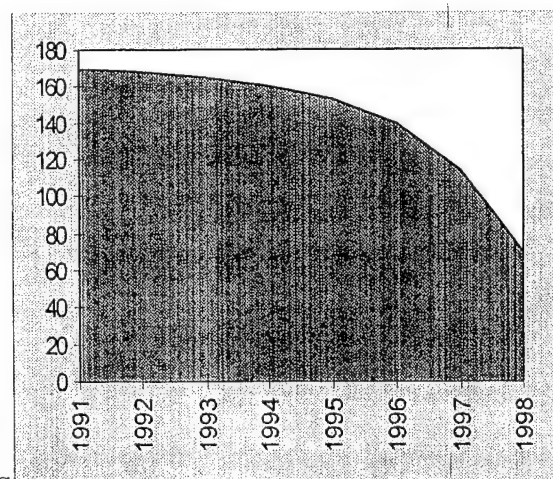
* Background
* Consolidation and Standardization
    ◆ Operations
    ◆ Finance Systems
    ◆ Accounting Systems
* Business Process Reengineering
* Contract Support Required
* Summary

Background

* DFAS Established - January 1991
* Charter
    ◆ Standardize/Consolidate
        ◇ Policy/Procedures
        ◇ Systems
        ◇ Operations
    ◆ Improve Service to Customers
    ◆ Reduce Costs

Magnitude of Operations - Monthly

* Disbursements - $25 Billion
* 2,000,000 Invoices
* 9,800,000 Payroll Payments
* 550,000 Savings Bonds
* 730,000 Travel Vouchers
* 340,000 Transportation Bills
* 8,500 Garnishments Processed
* 2,500 Military Retiree Death Cases Processed

4

Defense Finance and Accounting Service

* Background
* Consolidation and Standardization
    * Operations
    * Finance Systems
    * Accounting Systems
* Business Process Reengineering
* Contract Support Required
* Summary

5

DFAS Inherited
   6 Centers
   329 Activities
   30,500 Employees

Original DFAS Locations

- DAOs
- ☆ DFAS Centers
- ◇ DFAS HQ

3 sites in Guam
1 site in Puerto Rico
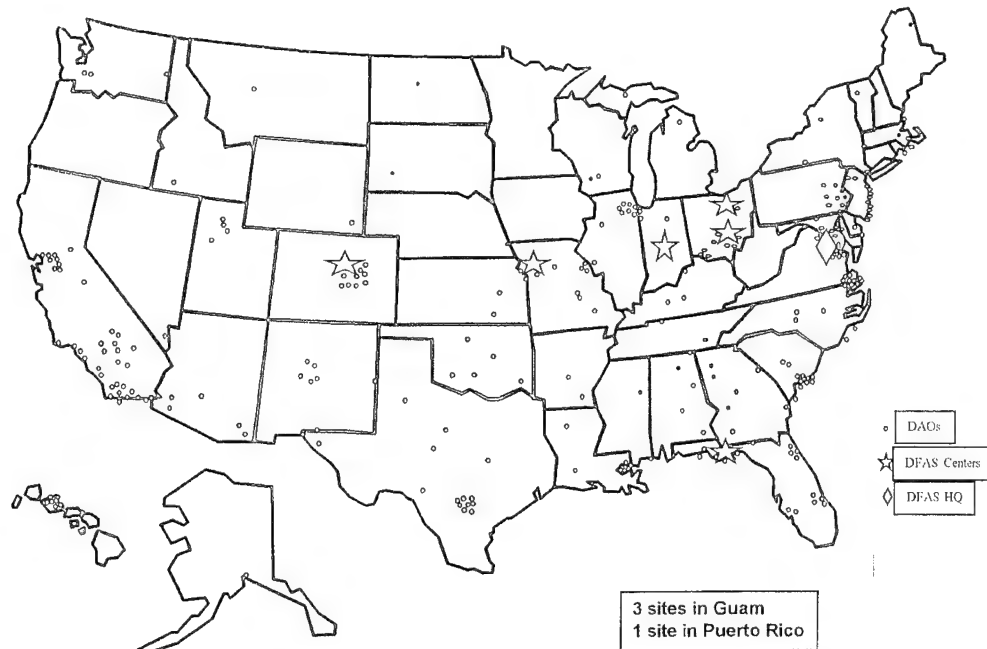
DFAS will have
   5 Centers
   21 Operating Locations
   22,000 Employees

Future DFAS Locations

Limestone

Rome

Cleveland

Rock Island

Indianapolis

Oakland

Omaha

Ripatoull

Columbus

Headquarters

Seaside

Kansas City

St Louis

Dayton

Denver

Norfolk

San Bernardino

Lexington

San Diego

Memphis

Charleston

Lawton

Honolulu

Pensacola

San Antonio

Orlando

- ★ OPLOCs
- ☆ DFAS Centers
- ◇ DFAS HQ

(92% Reduction of Offices)
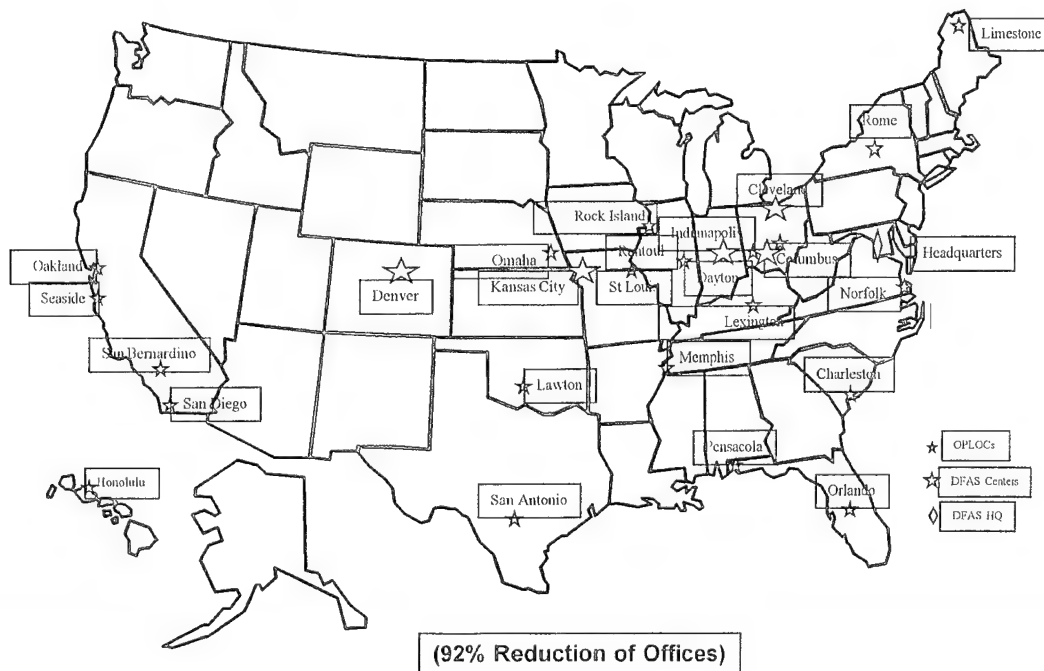
Consolidate Operations

Site Reductions

* Fiscal 1995
  * ◆ 15 Operating Locations (OpLocs) Activated
  * ◆ 42 Defense Accounting Offices (DAOs) Closed
* Fiscal 1996
  * ◆ 90 DAOs Close
* Complete Realignment - Fiscal 1999
* Savings: $120 Million Annually
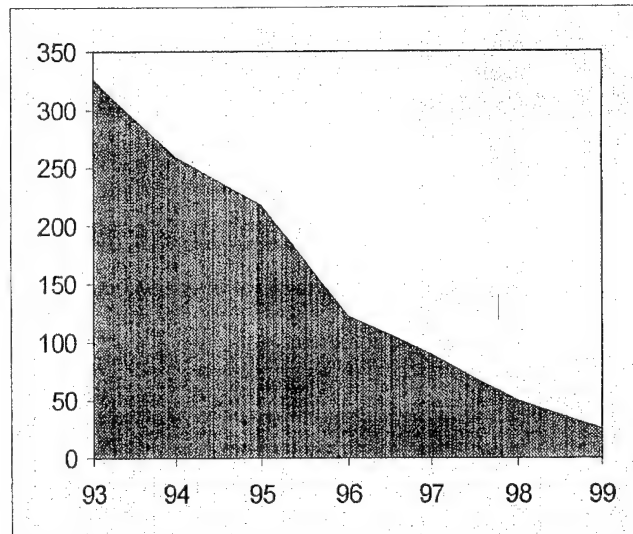
8

Defense Finance and Accounting Service

* *Consolidation and Standardization*
  * ✦ *Operations*
  * ✦ **Finance Systems**
  * ✦ *Accounting Systems*
* *Background*
* *Business Process Reengineering*
* *Contract Support Required*
* *Summary*

9

Finance Systems Strategy

Systems

* Standardize by Function
  * 82 Systems - 1991
  * 20 Systems - 1998
* Consolidate Operations
  * Contractor Payments
  * Civilian Pay
  * Military Pay
  * Retiree/Annuitant Pay
  * Transportation Payments
  * Debt Management
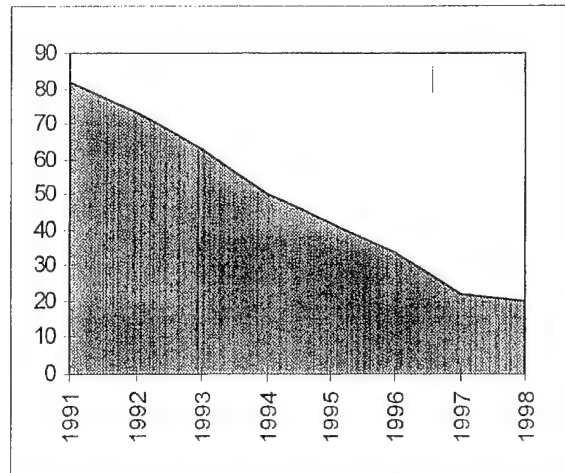
10

System Consolidation
Well Under Way

Finance 1998

Military Pay — 91%
Civilian Pay — 96%
Retiree/Annuitant — 88%
Transportation — 67%
Contractor Payment — 50%
Debt Management — 80%
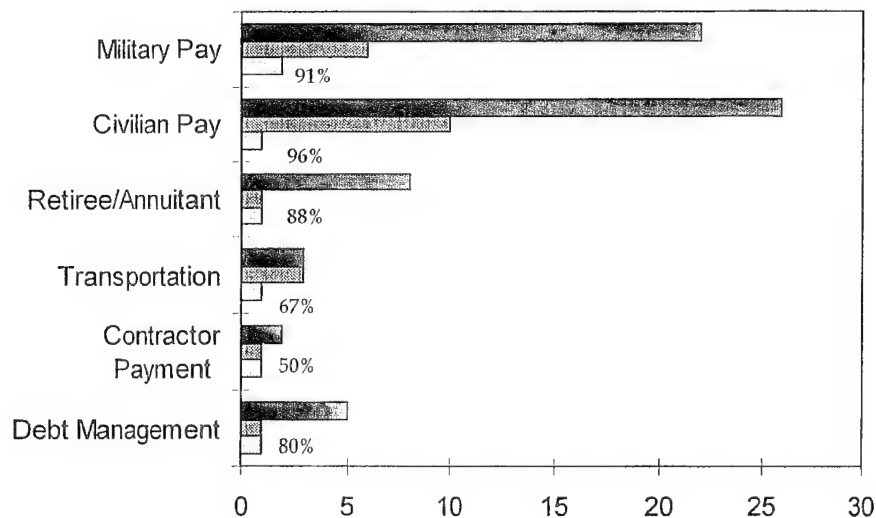
11

Defense Finance and Accounting Service

* *Background*
* *Consolidation and Standardization*
    * *Operations*
    * *Finance Systems*
    * **Accounting Systems**
* *Business Process Reengineering*
* *Contract Support Required*
* *Summary*

12

Accounting Systems Strategy

Systems

* Standardize by Function
    * 170 Systems - 1991
    * 71 Systems - 1998
* Consolidate Operations
    * General Funds
    * Defense Busines Operations Fund
    * Departmental/Reporting
    * Non Appropriated Funds
    * Trust Fund Accounting

13

System Consolidation
Well Under Way
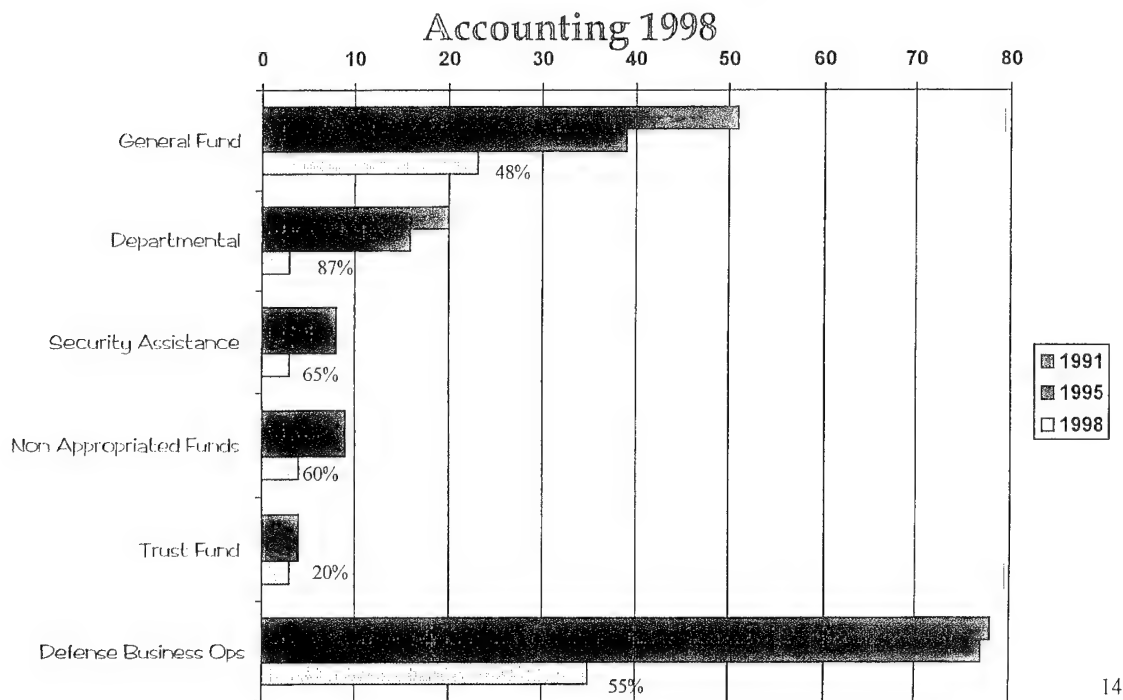
Accounting 1998

	0	10	20	30	40	50	60	70	80

General Fund — 48%

Departmental — 87%

Security Assistance — 65%

Non Appropriated Funds — 60%

Trust Fund — 20%

Defense Business Ops — 55%

Legend:
- 1991
- 1995
- 1998

14

Defense Finance and Accounting Service

* *Background*
* *Consolidation and Standardization*
    * *Operations*
    * *Finance Systems*
    * *Accounting Systems*
* *Business Process Reengineering*
* *Contract Support Required*
* *Summary*

15

EC/EDI/EFT

✳ EFT - Payments to Individuals

    Civilian Employees   800,000   88%

    Military:

      Active Duty   1,600,000   95%

      Reserve/Guard   1,200,000   94%

      Retiree/Annuitants   2,000,000   83%

          Dollar Value = $96 Billion

16

EC/EDI/EFT (Continued)

EFT - Payments to Major Contractors

	Payments		Dollars	
	Number	Percent	Value	Percent
Per Year	426,000	30%	$53.2B	60

EFT - Payments to Government Agencies

	Payments		
	Number	Percent	Value
Per Year	7,800	65%	$21.8B

17

EC/EDI/EFT (Continued)

* EDI - Invoices Received

	Number	Percent
Per Year	24M	9%

* Future
  - Increase Use of EFT for Contractor Payments
  - Increase Use of EDI Invoicing
  - Receive Contract Data by EDI
  - Use EDI to Prevalidate Payments

18

Other Streamlining Initiatives

* Imaging

* On-Line Reporting

* Travel Simplification

* Garnishment

19

Defense Finance and Accounting Service

* *Background*
* *Consolidation and Standardization*
  * *Operations*
  * *Finance Systems*
  * *Accounting Systems*
* *Business Process Reengineering*
* **Contract Support Required**
* *Summary*

20

Where Do We Get Our Support

* Philosophy
  * Use Existing Contract Vehicles Where Practical
  * Put in Place, Under DFAS Management, Key Support Contracts

21

Where Do We Get Our Support Cont.

* Systems Consolidation, Development & Maintenance
  ◆ Over 600 Contractor Personnel Per Year
  ◆ Use More than 10 Different Contract Vehicles
* Operation Consolidation
  ◆ Over 100 Contractor Personnel Per Year
  ◆ Purchased Goods & Services From More Than 12 Different Contracts
* Business Process Reengineering
  ◆ Over 50 Contractor Personnel Per Year
  ◆ Several Different Contracts Used

22

Major Contract Actions

* Imaging Contract
  Awarded   --August 1994
* Federal Information
  Processing Infrastructure
  Contract Awarded   --September 1995
* Support Services
  Contract Scheduled
  Award   -- Summer 1996

23

Defense Finance and Accounting Service

* *Background*
* *Consolidation and Standardization*
    * *Operations*
    * *Finance Systems*
    * *Accounting Systems*
* *Business Process Reengineering*
* *Contract Support Required*
* ***Summary***

24

Summary

* Significant Progress Has Been Made To
    * Consolidate Operations
    * Eliminate Redundant Systems
    * Reduce Operating Cost
* A Very Significant Workload Remains to Be Done
* We Need Our
    * Customers &
    * Suppliers
        * Help to Succeed

25

C3I Business Opportunities

Current on Friday, October 13, 1995

World Wide Web Address:

http://www.dtic.dla.mil:80/c3i/c3ia.html

Army Business Opportunities

Maneuver Control System Recompete for Block IV

* Description: C2 System, Echelons Corps and below
* Status: Draft RFP: Available; RFP: December 1995; Award: July 1996
* POC: PM: Barbara Girgus, 908-532-2947;
     KO: Steve Lacellis, CECOM, 908-532-4433

Information Mission Area Support Services for MICOM

* Description: Huge, omnibus contract to provide a full range of support services
  to MICOM locations in CONUS and overseas. Small business setaside.
  Systems components also required. Must be able to support a wide variety of
  systems platforms and environments. RFP DAAH01-95R-0251
* Status: RFP: Dec 95; Award: Jan 97
* POC: Contracting Officer: Barbara Jones 205-876-2250;
          Program Office: Richard Manley; 205-876-2235

Interim Radio Frequency Indentification Device (RFID)

*Description: Radio Frequency Device or Bar Code Reader with memory
  capabilities that facilities communications to a host computer
*Status: Draft RFP to be released 2QFY96; Final RFP, 3QFY96;
  Contract Award, 3QFY97
*POC: PM, AIT, Susian Vickers, 703-806-4110

Functional Support Services-Lee (FSS-L)

* Description: Provides a wide range of Functional Support Services for
  Army Software Dev Ctr - Ft. Lefe
* Status: RFP: FY96; Award: FY96
* POC: KO: Vera Davis, 703-325-6068

1

Tri-Band Terminal (STAR-T and SOFTACS)

  * Description: Tri-band on a simple HMMWV
  * Status: RFP: 1Q96; Award: 3Q96
  * POC: Ed Velez; PM SATCOM, 908 532-9728 X5860
Army Combat Camera

Electronic still photography & video system incl.satellite stations

  * Status: Varies by Command
  * POC: SGM Griffin, HQDA, 703-614-2528

Tele-medicine

  * Description: Various medical C4 projects
  * Status: Ongoing throughout the year
  * POC: PMO: MAJ Downs, 301-619-2751

Universal Modem System

  * Description: Strategic/Tactical Anti-Jam Modem
  * Status: RFP: 3Q FY96; Award: 2Q FY97
  * POC: PM Universal Modem: Al Miller, 908-532-9727/6828

Personal Computer – 2

  * Description: Desktop personal computers, peripherals, and office
    automation software for sustaining base and theater/tactical users
  * Status: RFP: May 96; Award: Jan 97
  * POC: PM Small Computer Program: LTC Fuller, 908-532-7917

Personal Computer – 3

  * Description: Desktop personal computers, peripherals, and office
    automation software for sustaining base and theater/tactical users
  * Status: RFP: May 98; Award: Jan 99
  * POC: PM Small Computer Program: LTC Fuller, 908-532-7917

2

Standard Systems Technology Support – 1 (SSTS–1)

  * Description: PC/Portable/Server peripherals, Upgrades,
    Software for fielded standard base
  * Status: RFP: June 96; Award: FY Jan 97
  * POC: PM Small Computer Program: LTC Fuller, 908-532-7917

AIT – IRFI

  * Description: Interim Radio Frequency Identification Equipment
  * Status: RFP: FY96; Award FY96
  * POC: PM Susan Vickers, 703-806-4110

Military Individual Communicator (MIC)

  * Description: Provides a paging capability via satellite
  * Status: RFP: FY99; Award FY00
  * POC: Scott Sharp, PM Milstar, 908 532-9767

3

Air Force Business Opportunities

Management Information Systems Technical Support

   * Description: Services Contract
   * Status: RFP: Nov 95; Award: May 96
   * POC: Diane Gringas, Hanscom AFB, MA 617-377-6466

BLSM

   * Description: Base Level Systems Modernization
   * Status RFP: Oct 95; Award: 2Q FY96
   * POC: Lt Col Smith, Gunter AFB, Al, (334)-416-4110

Desktop VI

   * Description: IDIQ Desktop personal computers, portables (laptops,
     notebooks, PDAs), PC peripherals, PC software.
   * Status: RFP: 3Q FY96; Award: 3Q FY97
   * POC: Maj Tasseff, Gunter AFB, AL, 334-416-1270

TSS

   * Description: Technical Support Services Sensor Spacecraft
   * Status: RFP: 1Q FY96; Award: 2Q FY97
   * POC: Ms. Brenda Lewis, Peterson AFB, CO, (719)-461-7530

Global Theater Weather Analysis & Prediction System

   * Description: Software development effort
   * Status: RFP: 3Q FY96; Award: 2Q FY97 (Possible 8(a))
   * POC: CPT Pino, AWS, (618) 256-5731 Ext 436

Hyperchannel

   * Description: Replace Global Weather Central Interface
   * Status: RFP: 3Q FY96; Award: 1Q FY97
   * POC: Mr. Marler, AWS, (618) 256-4741 X398

4

MISTS

* Description: Management Information Systems Technical Support
* Status: RFP: 1Q FY96; Award: 1Q FY97
* POC: Ms. Diane Gringas, Hanscom AFB, MA, (617)-377-7530

Unified Local Area Network Architecture (ULANA) III

* Description: Next generation LAN hardware and software
* Status: RFP: 3Q FY98; Award: 3Q FY99
* POC: Ray Olivas, 38 EIW, Tinker AFB, (405) 734-9928

CMC

Description: Cheyenne Mountain Complex Software Support
Status: RFP: Jan 96 Award 1Q FY 97
POC: Mr. Chuck Parker, Peterson AFB, CO, (719)-556-4080

5

Navy Business Opportunities

NISMC Forecast BBS

  * Description: Solicitations and Forecasts
  * Phone Number: 202-433-3405
  * Administrator: Jack Rymer 202-433-4535

Navy Acquisition BBS

  * Description: Marketing BBS; Long Range Acquisition Estimates
  * Phone Number: 317-353-3413
  * Gen'l Q&A: Ms Tronic; 703-602-2849
  * SW Help: Ms Johnson; 317-353-4300

SPAWAR Acquisition BBS

  * Description: Solicitation Information; Long Range Acquisition Plans
  * Phone Number: 703-602-9494
  * Administrator: Bernie Ford; 703-602-6073

TAC-X

  * Description: Family of open contracts addressing a multiple of product lines
    (domains)
  * Planning Info: Internet web page; 204.254.216.31
  * Additional Info: Ms Valerie Wallick; (703) 602-6278

Navy Desktop (NAVDESK)

  * Description: IDIQ to acquire larger scale desktop systems suitable to
    applications development. Maximum two year ordering period
  * RFP: 3Q FY96
  * Mr. Ron Lash, NCTC; (202) 764-0825

6

Naval Telecommunications Infrastructure Project (NAVTIP)

  * Description: IDIQ to acquire telecommunications switching equipment and
    services with state-of-the-art commercial-off-the-shelf switching equipment,
    private branch exchanges and CPE
  * RFP: 1Q FY96
  * Mr. Chuck Trigger, SPAWAR; (703) 602-4045

Survivability Analysis and Support (SAS)

  * Description: IDIQ for support services for the Survivability Division at the
    Naval Air Warfare Center, Weapons Division, China Lake
  * RFP: 1Q FY96
  * Mr. David Hall, NAWCWD; (619) 927-1297

DoD Business Opportunities

Defense Finance and Accounting Service Financial Integrated Support Services

  * Description: Wide range of support services for DFAS systems
  * Status: RFP: FY96 Award: FY96
  * POC: Audrey Davis, Acq Mgr: (317) 549-5987

Defense Nuclear Agency Technical Support Services

 * Description: ADP technical support services; LAN support, help desk,
 application development, test data preservation, training, IV&V support.
 Small business setaside
 * Status: Draft RFP: May 96; Award: 3Q FY97
 * POC: IRM Office: Robert Thomas 703-325-0725

Defense Mapping Agency Digital Production System (DPS) Migration

  * Description: Very large, Tri-phase program to migrate the current DPS to open
    systems architecture, COTS HW and SW
  * Status: Acquisition. Strategy under development
  * POC: PM: Col Henry Obering III, 301-227-2093

7

OSD Systems Engineering and Technical Support Services

   * Description: Multiple award, IDIQ contracts to support OSD automation
     initiatives. No equipment or commercial software licenses
   * Status: RFP: Dec 95; Award: Oct 96
   * POC: Tim Sullivan, 703-604-1507

OSD Health Affairs Support Hardware and Automation Related Products (SHARP)

   * Description: Acquisition of Commercial off-the-shelf (COTS) computer
     equipment, software, training and maintenance.
   * Status: Draft RFP released April 30, 1995; RFP: undetermined (FY96)
   * POC: Contract Specialist - Mrs. Geraldine Marshall,703-681-0155
           Contracting Officer: Mrs. Joyce Ellis, 703-681-0340

OSD Health Affairs OCHAMPUS ADP Hardware/Software Support Services

   * Description: Performance in FY 97 – 2002
   * Status: Acquisition Planning Stage.
   * POC: Gene Mays, 303-361-1185
              E-Mail: maysg@ochampus.mil

Defense Logistics Agency – Standard Procurement System

   * Description: Automated Procurement System to be used DoD – Wide;
     Major Opportunity
   * Status: RFP: Oct 30, 1995; Award: 4Q FY96 (OSD est.)
   * POC: PM: CAPT Case, 703-767-6363; KO: David Hecht, 703-274-1305

Defense Logistics Agency – Automated Manifest System

   * Description: Automated system utilizing. laser card technology to
     enhance tracking, accountability & improve visibility of materials in
     the distribution system.
   * Status: RFP : Delayed for further requirements definition; Award: TBD
   * POC: Lucy Capaldi, MMATT, 703-767-3627

8

OSD High Performance Computing Mod Program: DREN

* Description: Second acquisition to provide high speed network for Major
  Shared Research Center access: support DoD Sci&Tech, T&Eval
* Status: RFP: 1Q FY96; Award: 4Q FY96 (OASD(C3IA) est)
* POC: PM: Tony Pressley, 703-812-8205; KO: Pam Locke, 703-812-8205

DISA Comm for TROJAN/Intelligence Electronic Warfare (TROJAN/IEW)

* Description: Dedicated, point-to-point digital comm system. 100 worldwide
  locations homed to a central complex at Ft. Belvoir, VA. Also provides
  connectivity to remotely deployed transportable satellite terminals. Contractor
  will engineer, furnish, install the system
* Status: RFP: FY96; Award: FY96
* POC: Ms. Jo Ann Smith; 618-256-9455

DISA Hawaii Information Transfer System (HITS)

* Description: HITS provides full range of telecommunications services and CPE
  to support the Defense components and commanders in Hawaii
* Status: RFP: 31 Oct 95 Est; Award: 4Q FY96
* POC: PM: LTC Barry Bryan, 703-681-0321

DISA Joint Interoperability Test Command (JITC) Omnibus Contract

* Description: 5-year, CPFF contract provides engineering and scientific support
  the JITC test mission. This includes planning, evaluating and reporting results
  of test and evaluation for DoD C4I information systems
* Status: RFP: 1Q FY96; Award: 4Q FY96.
* POC: Contracting Officer: N. Tinnell, 520-533-1213
         PM/tech official: Wesley Holmes, 520-538-5254

DISA Integrator Services for Air Force Phase IV Modernization

* Description: Integration services; maintenance of Unisys and third-party
  equipment; some new hardware and software; relates to the migration of Air
  Force worklead in MegaCenters to modern platforms (platforms will be bought
  separately)
* Status: RFP: 2Q FY96; Award: 4Q FY96
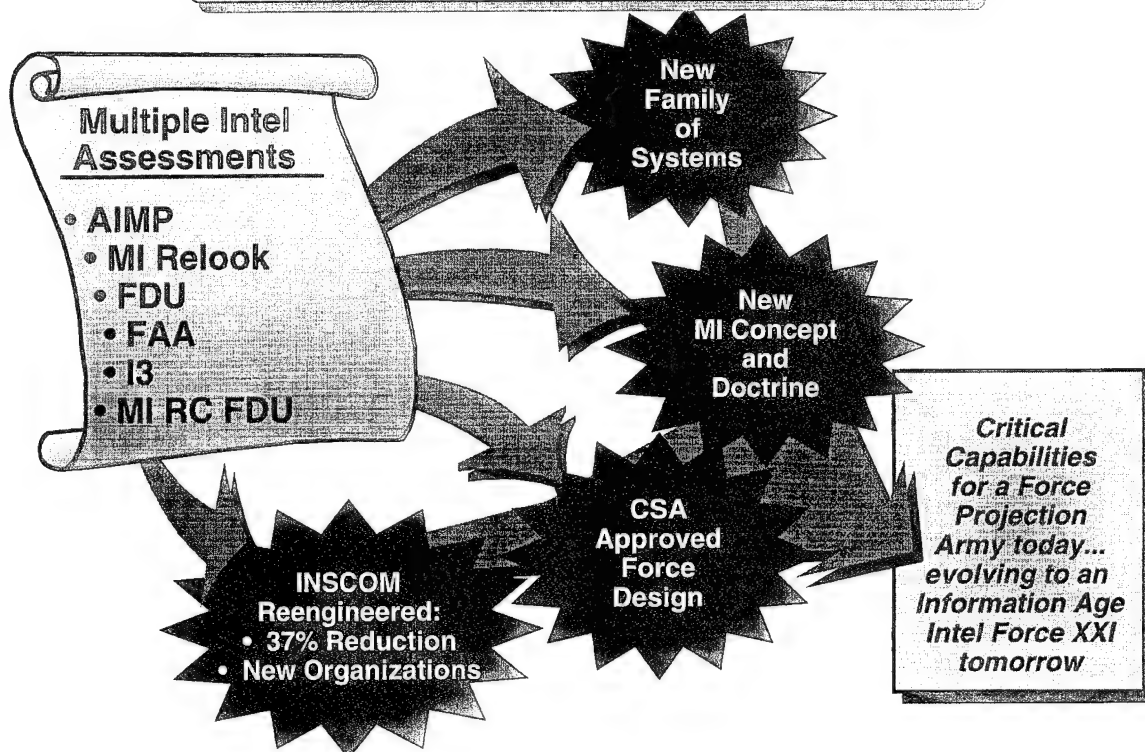* POC: Mike Black, DISA Denver; 303-676-1793

9

DISA Megacenter HW, DASD

* Description: Acquisition of DASD upgrades
* Status: RFP: 1Q FY97; Award: 1Q FY98
* POC: : KO: Coni Jackson, 618-256-9696, PM: Cal Ader, 303-676-1796

Megacenter HW, Mainframe Upgrades

* Description: Acquisition of Megacenter CPU upgrades
* Status: RFP: 3Q FY96; Award: 3Q FY97
* POC: : KO: Coni Jackson, 618-256-9696, PM: Cal Ader, 303-676-1796

Megacenter HW, Front End Processors

* Description: Acquisition of Megacenter 370/390-compatible equipment &
  upgrades - 3 yr. ordering - IDIQ
* Status: RFP: 2Q FY97; Award: 2Q FY978
* POC: : KO: Coni Jackson, 618-256-9696, PM: Cal Ader, 303-676-1796

Megacenter HW, Robotic Tape Libraries (RTL)

* Description: Acquisition of Megacenter RTL to support operational and
  archival requirements
* Status: RFP: 1Q FY97; Award: 1Q FY98
* POC: : KO: Coni Jackson, 618-256-9696, PM: Cal Ader, 303-676-1796

Megacenter HW, Remote Job Entry (RJE) Equipment

* Description: Acquisition of RJE Equipment
* Status: RFP: 1Q FY97; Award: 1Q FY98
* POC: KO: Coni Jackson, 618-256-9696, PM: Cal Ader, 303-676-1796

10

Army Intelligence
Information Requirements
briefing to the
American Defense Preparedness Association
Advanced Planning Briefing for Industry

LTG Paul E. Menoher, JR.
Deputy Chief of Staff for Intelligence

... *The Commander Drives Intelligence*

Bottom Line - Up Front

Multiple Intel Assessments

- AIMP
- MI Relook
- FDU
- FAA
- I3
- MI RC FDU

New Family of Systems

New MI Concept and Doctrine

INSCOM Reengineered:
- 37% Reduction
- New Organizations

CSA Approved Force Design

Critical Capabilities for a Force Projection Army today... evolving to an Information Age Intel Force XXI tomorrow

New Family of Systems

Fielding

All Source Analysis System
Guardrail Common Sensor
JSTARS Ground Station Module
Modernized Imagery Exploitation System
Tactical Radar Correlator
Mobile Integrated Tactical Terminal
Forward Area Support Terminal (FAST)
Airborne Reconnaissance Low (ARL)
Trackwolf
TROJAN SPIRIT
UAV - Short Range
Enhanced Tactical Radar Correlator
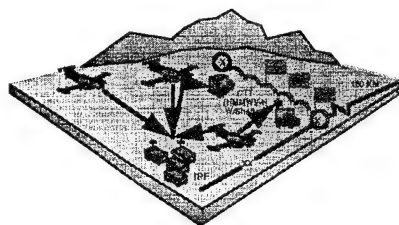
To Be Fielded:

Next 2 Years:
  Ground-Based Common Sensor
  Advanced Quickfix
  UAV - Maneuver
  Enhanced Trackwolf
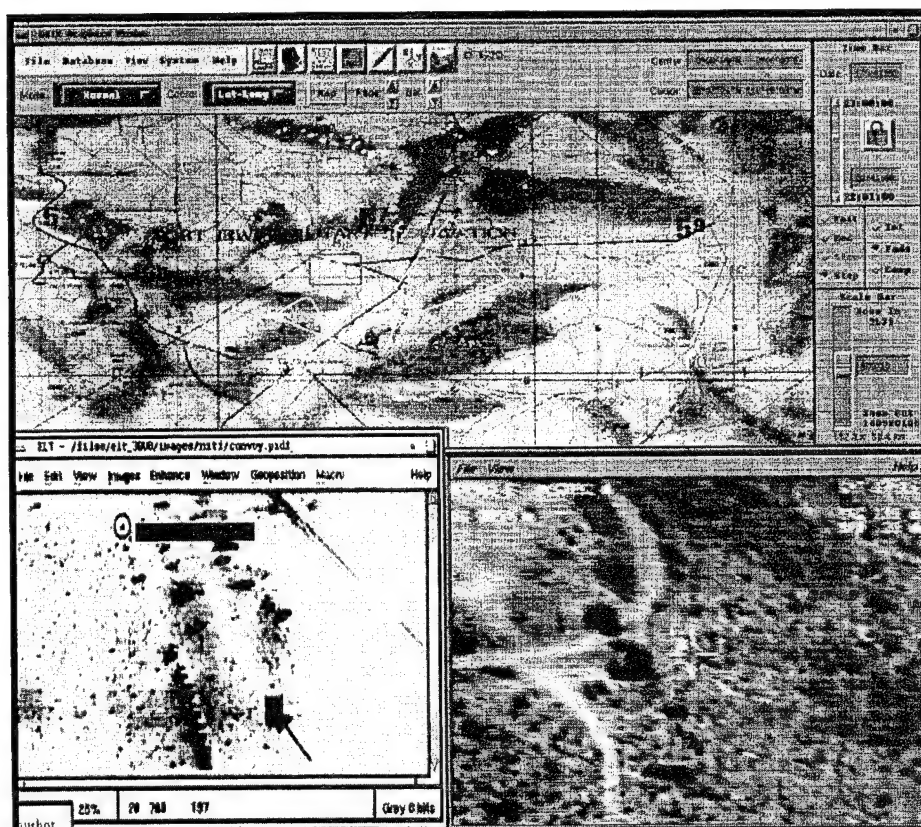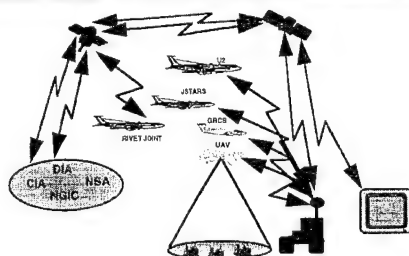
Critical Capabilities

- Targeting Accuracy- Multiple Systems
- Broadcast Intel and Targets to Multiple Echelons
- Balance Between Disciplines
- All Source Fusion
- Reliable Comms for Dissemination
- Scalable, Shared View of the Battlespace
- Open Architecture
- Fewer Systems
- Mobility = To Supported Force

INTEL XXI

MI TODAY

MI Concept for Force Projection
- FIVE MI DOCTRINAL TENETS -

THE COMMANDER DRIVES INTELLIGENCE

INTEL SYNCHRONIZATION

INTEL SYNCHRONIZATION
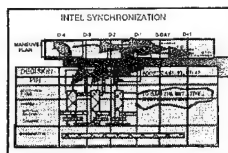
MELD W/OPERATIONS & FORCE PROTECTION

BROADCAST

DIAL-UP..."PULL" INTEL

MI
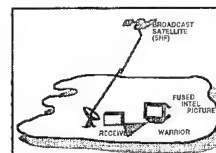
SPLIT-BASED
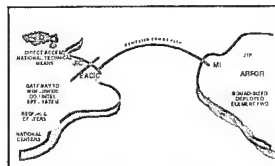
FOCUS DOWN

TACTICAL TAILORING
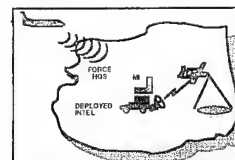
FLEXIBLE & VERSATILE

INFORMATION WARFARE

Interagency   *Joint*   *Combined*

165

Conclusion
- Good News Story-

We're in Good Shape, But Can't Rest on Our Laurels...

BOTTOM LINE

Conducted detailed assessments:
- AIMP
- MI Relook
- FAA & FDU
- RC MI FDU

... Technology and The Threat Will Pass Us By, Unless We Continue to Push The Envelope

Our Goal: Intel XXI - A Vision approved by Army Leadership; evolving as we leverage Information age technology

Critical Capabilities for a Force Projection Army Today... evolving to an Information Age Intel Force XXI tomorrow

Continue to leverage Technology - Tech Symposium - WW Intel Conf to evolve our Vision - Intel XXI

Intel XXI -- The Vision

**Vision Validation
One Team
One Vector
One Voice**

Principles and Themes of Force XXI.. Our Starting Point

Dominant Aspects of the Future Battlefield

Battle Dynamics

Force XXI Characteristics

Army Modernization Objectives

Fundamental Warfighter Requirements Intelligence must support

- Battle Command
- Extended Battle Space Dominance
- Information Dominance
- Force Projection
- Operational Flexibility

Resulting Intel Tasks.. The Beginning of Our Vision

PRESENT		
MANAGE		
COLLECT		
PROCESS		
DISSEMINATE		
INFO OPNS		
• C2 Exploit		
• C2 Attack		
• C2 Protect		

**Tech Symposium
World Wide Intel Conf
Leadership Briefs**

**Intel XXI..
The Vision**

**ROADMAPS
How We Get There!**

Force XXI Campaign Plan

Tied to Force XXI Key Events

166

Battle Command

Warfighter Requirements
- Visualize
  - Forces
  - Environment
- Assimilate Information
- Anticipate
- Develop Estimates/COAs

Key Intel Attributes
- Real-time/Dynamic
- Predictive
- Common Understanding
- Shared Situational Awareness

The art of battle decision making, leading and motivating soldiers and their organizations into actions to accomplish missions - FM 100-5

Wargaming...Mission Planning...Mission Rehearsal Tool

Intel Prep of the Battlefield
- AI supported IPB tool
- Correlation
- C2W/IO IPB
- Knowledge Based Tools
- Integrates Weather and Terrain

Interactive... depicting enemy COAs, capabilities & intentions

G2

G3

Distributive Cyberspace Wargaming technologies linking intelligence with operations

CDR

COA 2

COA
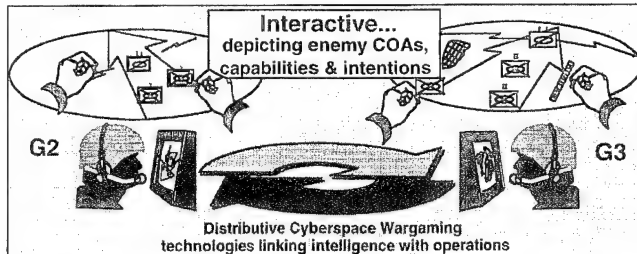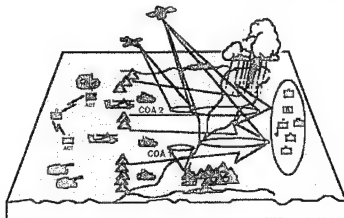
Extended Battlespace Dominance

Warfighter Requirements
- Depth
  - Improve RISTA
  - ID, disrupt and destroy at greater ranges
  - Increase force protection
- Simultaneity
  - Orchestrate force effects in time and space
  - Joint/Multinational/Interagency
  - Synchronization

Support to:
- Command & Control
- Targeting/BDA
- Maneuver
- Info Operations

Future intelligence, reconnaissance, active and passive target acquisition, and surveillance systems will provide commanders with continuous wide area battlefield observation at greater ranges, prevent fratricide and provide joint BDA. TRADOC Pam 525-5

Sense the Battlefield Environment
- AI Collection Management
- Integrate all sensors
- Netted Suite of sensors
- Full spectrum collection

Convey Information
- Bandwidth on Demand
- Broadcast/tether/link to tactical forces
- Wireless LAN

RIVET JOINT
GRCS
UAV-SR
JSTARS
Avn Bde
CTA
DIV G2
GSM
CTOC
ATACMS
MI Bn
Corps Arty
DIV 88

Information Dominance

Warfighter Requirements
- C2 Info Management
  - Horizontal and Vertical Integration of Information
  - Global Environment
  - Interoperability
- C2 Warfare
  - C2 Exploit
  - C2 Attack
  - C2 Protect

C2 Warfare

Exploit

INTEL

Attack   Protect

The intelligence system plays a vital role in C2W...intel underpins and supports all C2W functions.

C2 Protect
- ID Friendly Vulnerabilities
- ID Threat Attack Capabilities
- ID Threat Attack Intentions

C2 Exploit
- Info Systems IPB
- ID High Value C2 Targets
- Knowledge Base tools
- Understand the Threat Info System

C2 Attack
- Attack a System of Systems
- Attack Multiple Nodes
- Lethal and Non-Lethal

Information Dominance

BLUE BATTLEFIELD VISUALIZATION

= *Information Dominance*
- The aggregate of Information Operations activities that create an **advantage**
- Not just in the *amount* of information but in the relative capacity for **Battlefield Visualization**

The Commander's **understanding** of his **current state** in relation to the **enemy** and the **environment**...

and...his ability to see these in the context of a **desired end state**...

and...his ability to visualize the **sequence of activity** that will move his force from its current state to its desired end state

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Battlefield Visualization
Enabling Technologies

Displays

Visualization Databases

Automatic Target Recognition

Terrain
- Elevation DB
- Features DB
- Texture DB
- Images DB

Synthetic Environments

Dynamic
- Entities
- Units
- Terrain
- Environment

Computer Hardware

Software

- AI Collection Management
- WAN Info Retrieval & Processing
- Knowledge Tools

Sensors

Networks
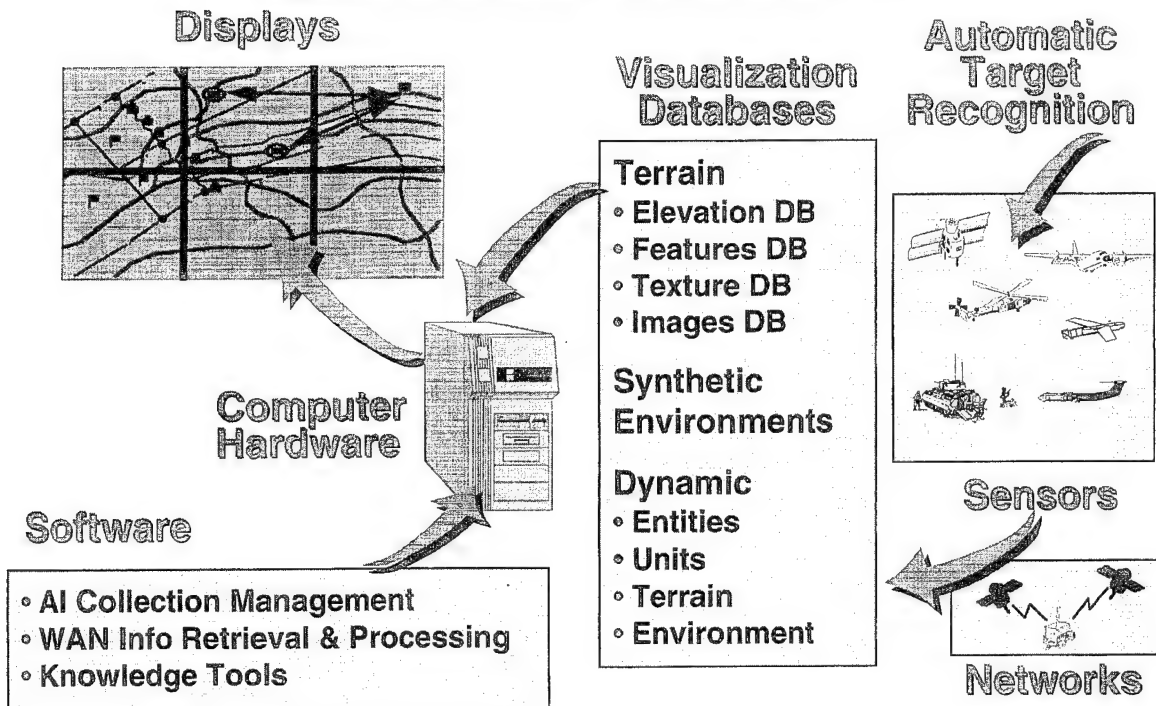
Technology Maturation
Support to Battlefield Visualization

COMPUTER HARDWARE

SOFTWARE

DISPLAYS

NETWORKS

ATR

SENSORS

TERRAIN DATABASES AND SYNTHETIC ENVIRONMENT

Force XXI Requirements

TODAY   2000
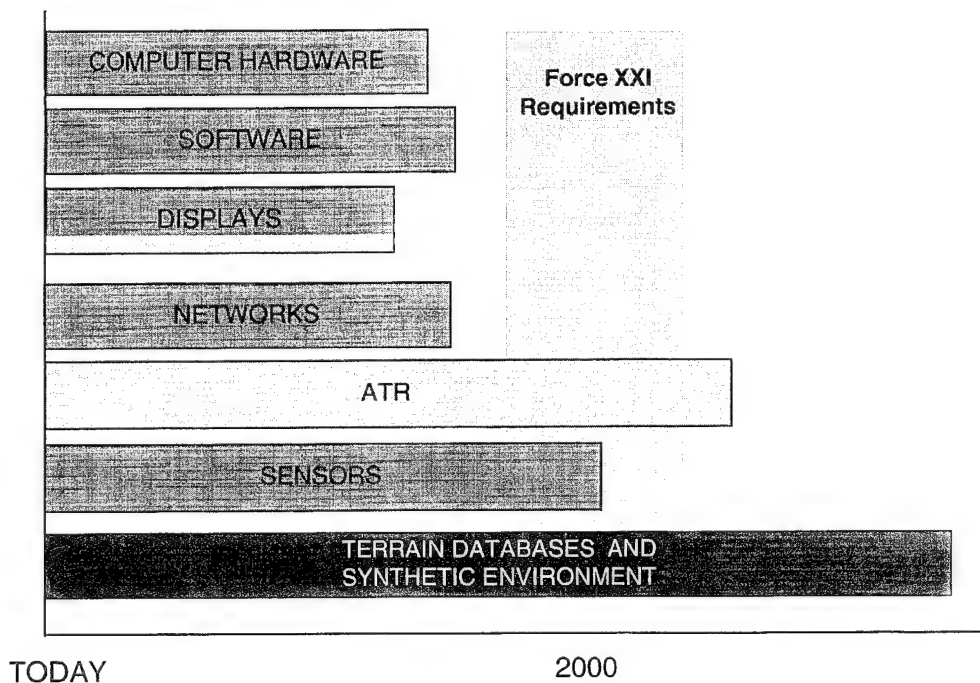
Digital Terrain
The Coverage Problem

DTED - Level 1 (100 meter)

DTED - Level 2 (30 meter)
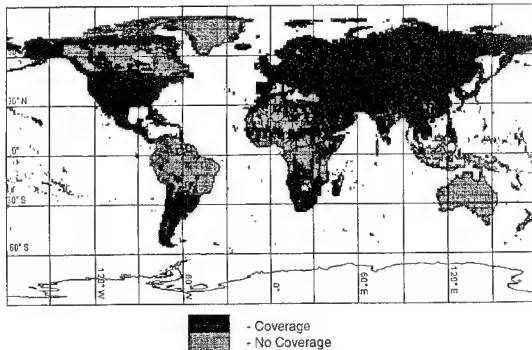
- Coverage
- No Coverage
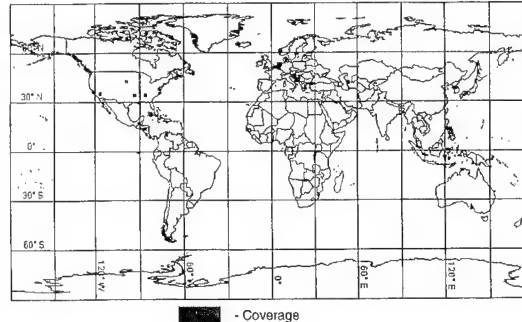
- Coverage

DTED Level 3, 4, 5 coverage is virtually non-existent

Digital Terrain Data
The Resolution Problem

DTED Level 1 (100 meter)
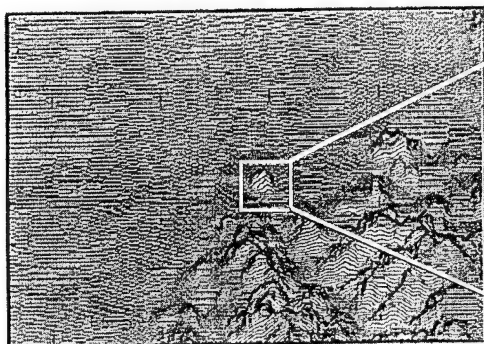
DTED Level 4 (3 meter)
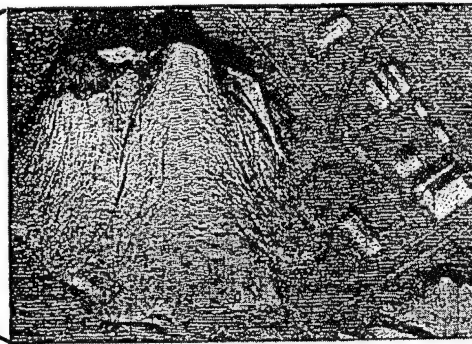
- **Planning-level data**
  - Levels 1 (100m) and 2 (30m)

- **Operation-specific areas require higher resolution data**
  - Levels 3 (10m), 4 (3m), and 5 (1m)

- **High resolution data requires near-real time capability (e.g., source acquisition, elevation generation, and dissemination to operational users)**

Commander Monitors the Battle
Movement to Contact "On Track"

	TF 1-8 INF	TF 2-32 AR	TF 3-32 AR
STATUS	●	●	●
MI	●	●	●
M2	●	●	●
FS	●	●	○
COMMS	●	●	●
PERS	●	○	●
CL I	●	●	●
CL III	○	●	●
CL V	●	●	●
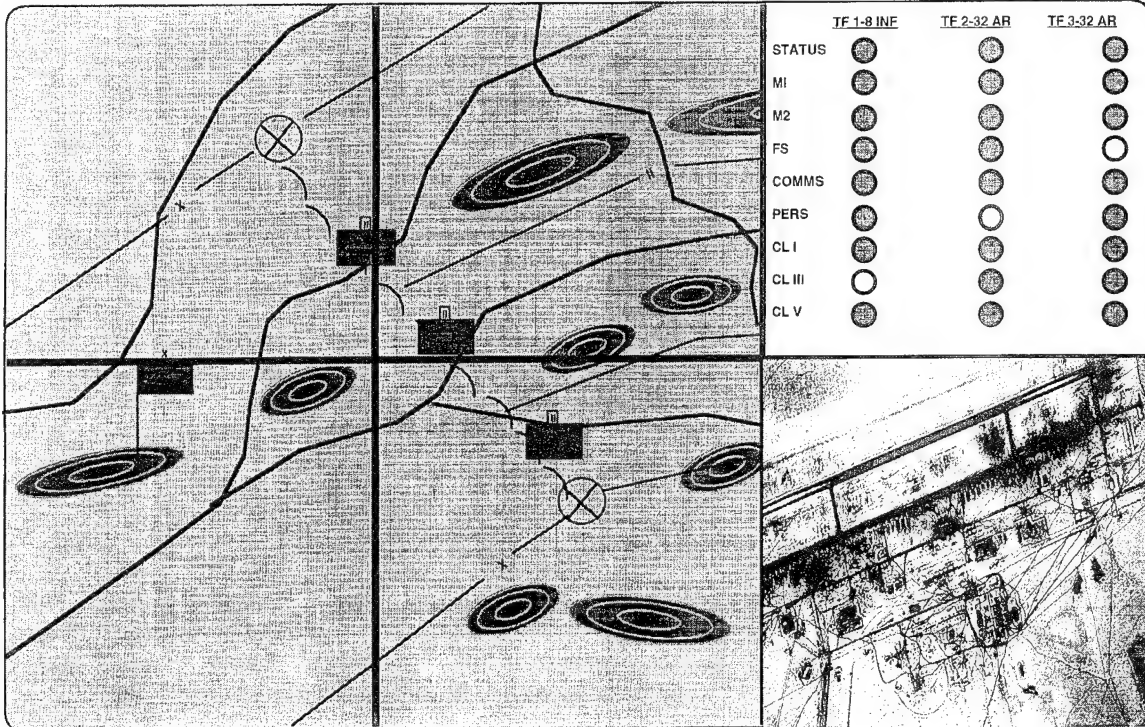
BV - 17

Enemy Unit Detected
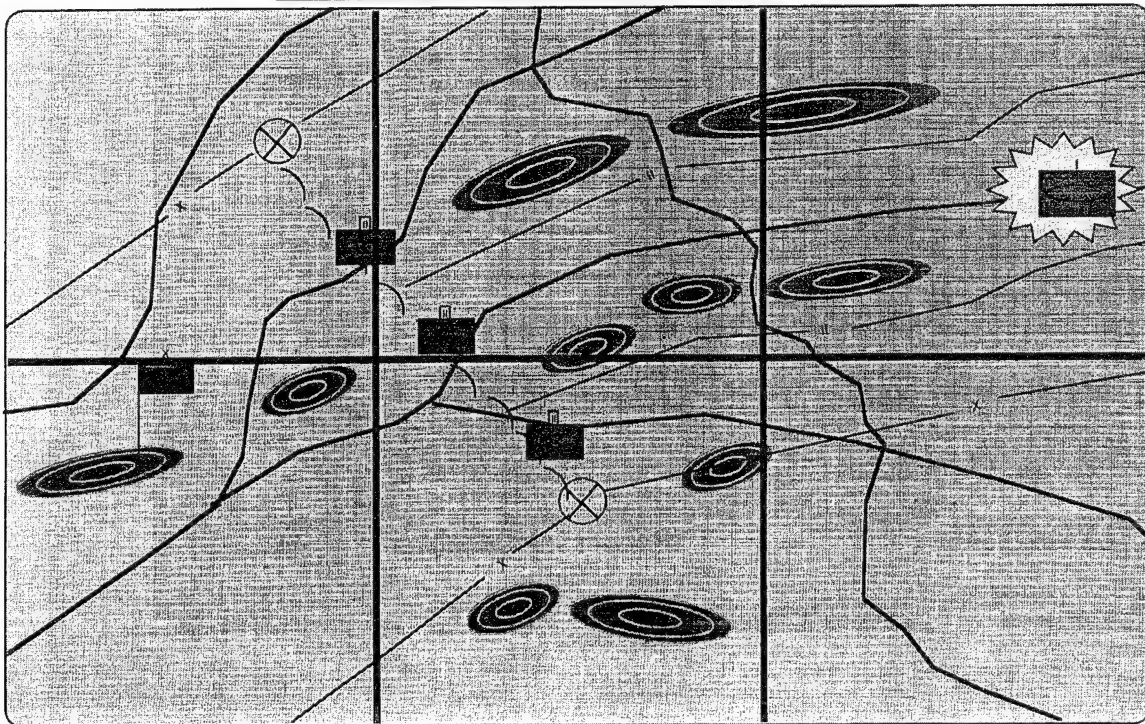
BV - 18

S2 Zooms to 3D View
Notes U/I Movers

Labels in image: BMP-3, T-72, T-72, U/I, U/I, BMP-3, BMP-3, T-72, T-72, T-72, T-72, T-72
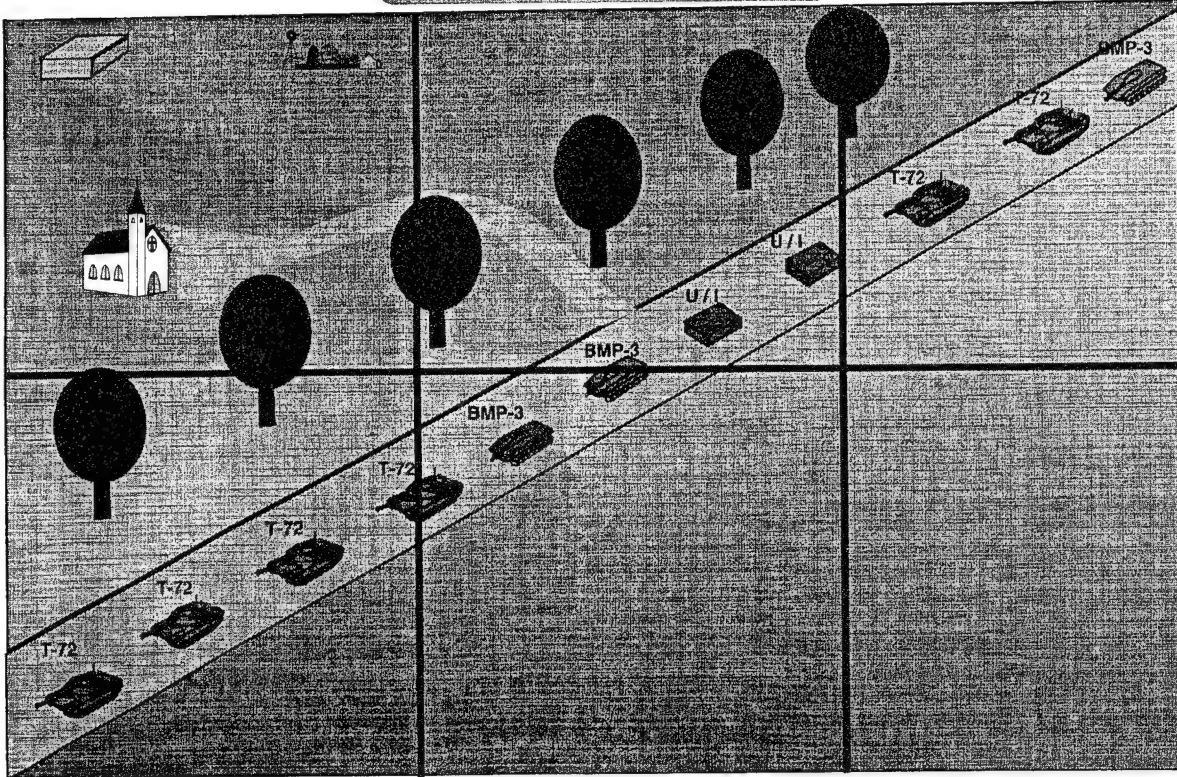
S2 Toggles to Data on U/I Mover

Labels in image: BMP-3, T-72, T-72, U/I, U/I, BMP-3, BMP-3, T-72, T-72, T-72, T-72, T-72

SOURCE DATA

MOST CURRENT
JSTARS REXREP	241314Z MAR 99

HISTORY
JSTARS REXREP	241311Z MAR 99
JSTARS REXREP	241309Z MAR 99
UAV RECCEREP	241309 MAR 99

ENTITY
SIZE: 1
ACTIVITY: MOVING WEST, 22 KPH
LOCATION: 52SCT12345678
UNIT: U/I ARMOR CO
TIME: 241314Z MAR 99
EQUIPMENT: U/I VEHICLE
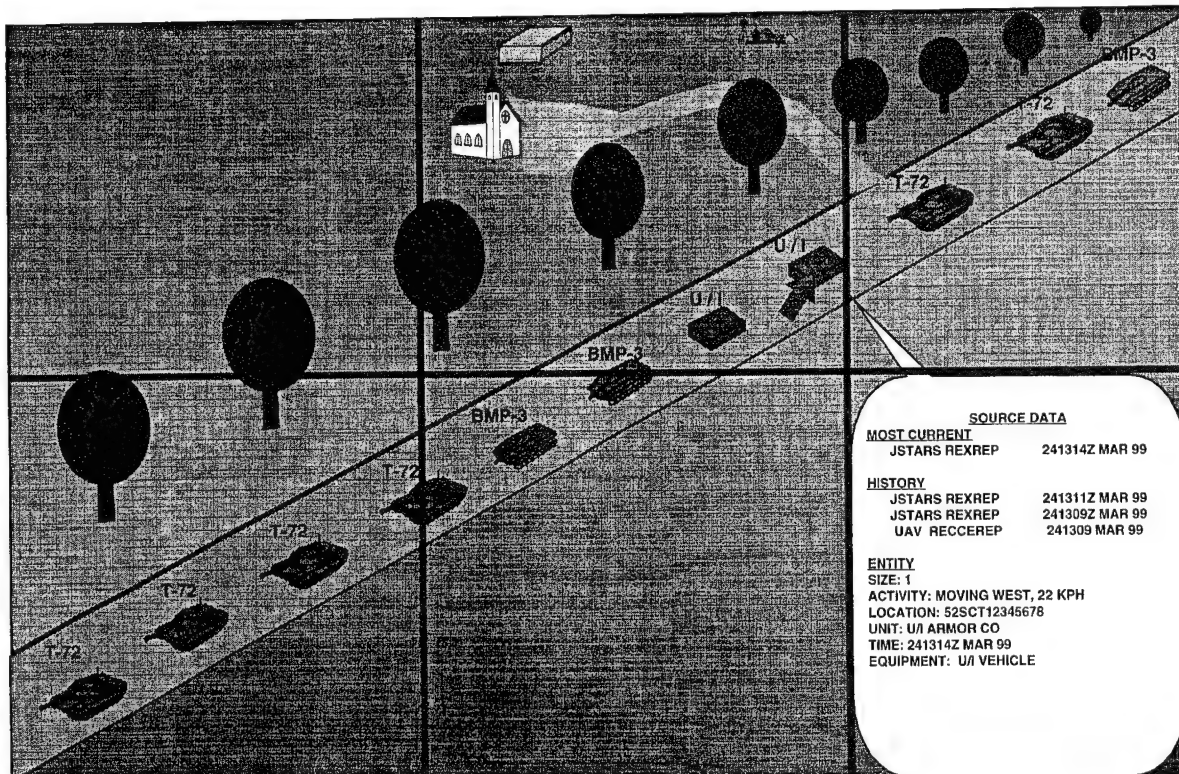
S2 Plays UAV Video
Notes ATR Filter Deficiency

SOURCE DATA

MOST CURRENT
JSTARS REXREP   241314Z MAR 99

HISTORY
JSTARS REXREP   241311Z MAR 99
JSTARS REXREP   241309Z MAR 99
UAV RECCEREP   241309 MAR 99

ENTITY
SIZE: 1
ACTIVITY: MOVING WEST, 22 KPH
LOCATION: 52SCT12345678
UNIT: U/I ARMOR CO
TIME: 241314Z MAR 99
EQUIPMENT: U/I VEHICLE

ATR Assisted Vehicle I.D.

ATR THREAT EVALUATION

BRDM-2
AT-5   84.3% PROBABILITY

BRDM-2
RkH   72.1% PROBABILITY

BMP-3   51.2% PROBABILITY

T-72   40.4% PROBABILITY

TOGGLE TO SELECT ⇧
THREAT VEHICLE OR
SCROLL DOWN FOR ⇩
OPTIONS

Location Data Stale
AI Coll Mgt Program

AI COLLECTION MGT PROGRAM

SOURCE DATA IS BECOMING STALE RECOMMEND YOU RE-TASK UAV TO DWELL OVER THESE TARGETS

ACCEPT   DENY

Estimation Mode On
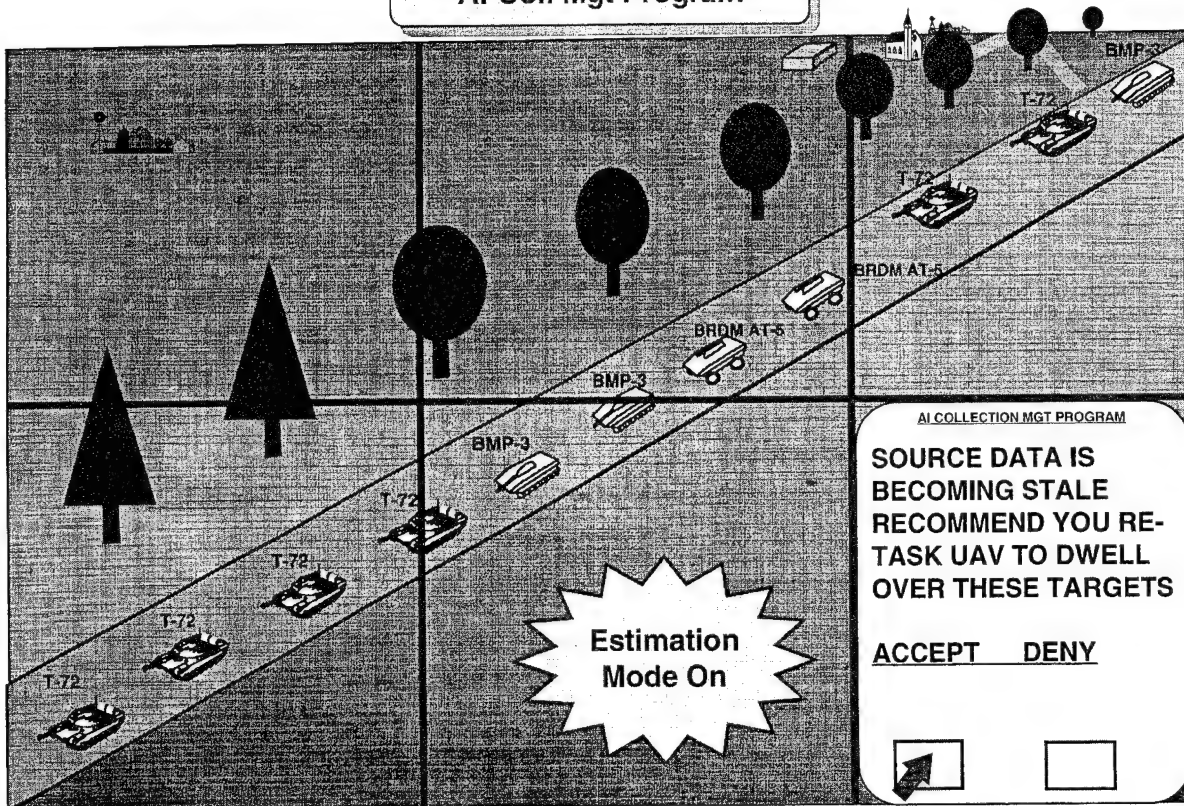
T-72 Flashes
S2 Toggles to SIGINT Data

SOURCE DATA

MOST CURRENT
GRCS TACREP   241316Z MAR 99
GBCS TACREP   241316Z MAR 99
HISTORY
JSTARS REXREP   241314Z MAR 99
JSTARS REXREP   241311Z MAR 99
JSTARS REXREP   241309Z MAR 99
UAV RECCEREP   241309 MAR 99

ENTITY
SIZE: 1
ACTIVITY: MOVING WEST, 22 KPH
LOCATION: 52SCT12345678
UNIT: 2 ARMOR CO, 3 TK BN, 11 AR BDE
TIME: 241316Z MAR 99
EQUIPMENT: T-72

174
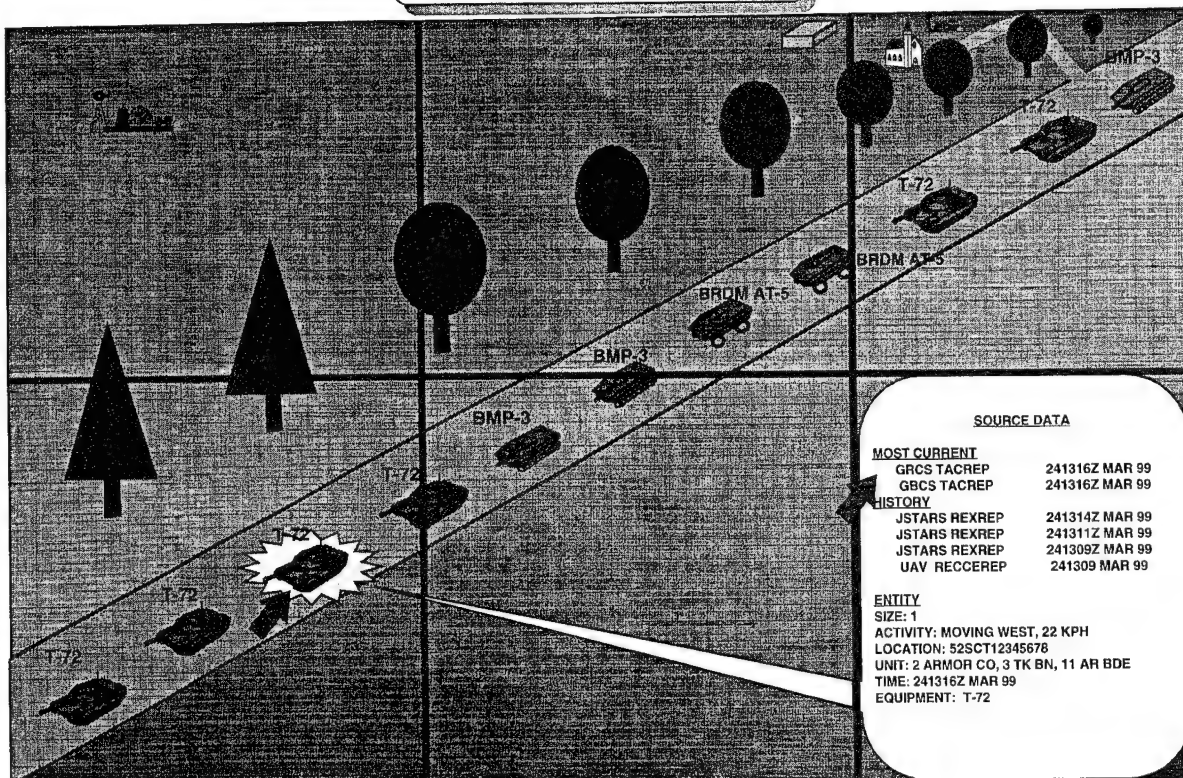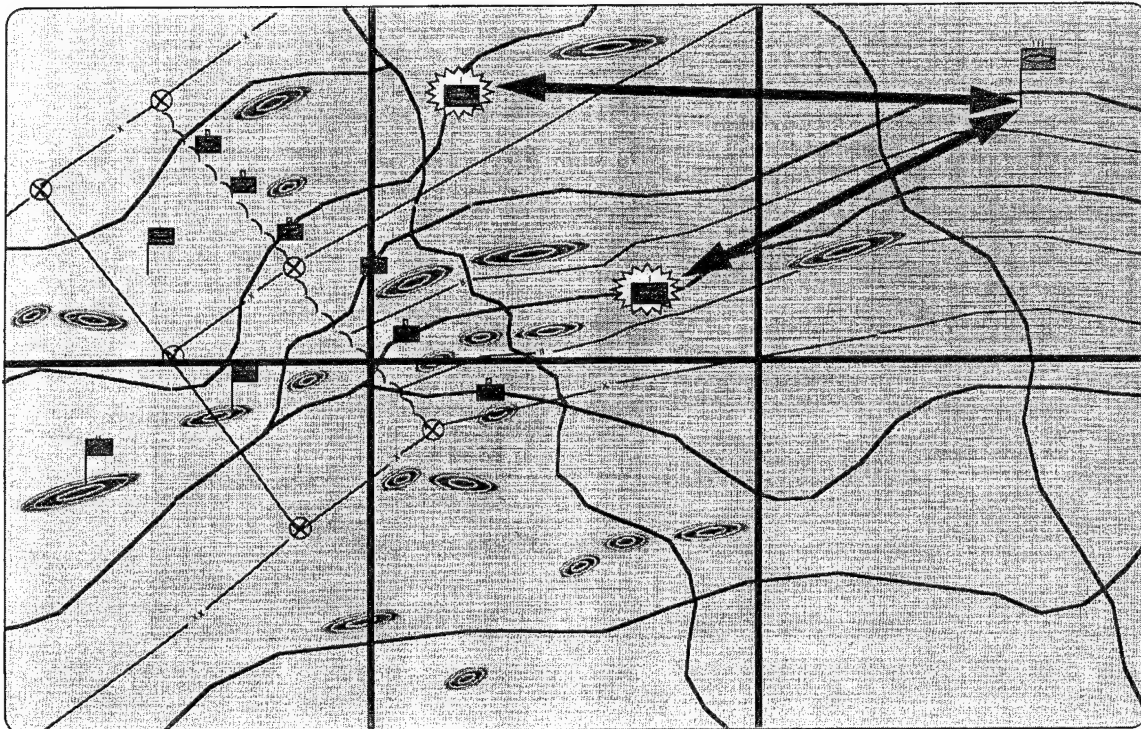
What We're Doing

- Army Internal Management Plan Development
  - ODCSOPS developing the plan
  - Technical working groups meeting
  - TRADOC working a holistic master plan
- Crisis Response (Hasty Mapping) Exercise
  - DMA and TEC effort on JRTC
  - Quarterly exercises upcoming
- JROC Elevation Working Group (DMA lead)
  - Defining user requirements
  - Assessing technologies
  - Developing options for recommendation to JROC
- Battlefield Visualization ACTD
  - Developing ACTD Concept
  - Two building block ATD's briefed to ASTWG
    - Rapid Terrain Visualization
    - Battlespace Command and Control

Great Work Going On!

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ATDs Supporting Battlefield Visualization
Concept

Capture and Prepare Data

Disseminate Data

Manipulate and Display Information

Rapid Terrain Visualization ATD (JPSD)

Rapid MAPEX
Std DMA Products
National Imagery
Commercial Imagery

Generate & Tailor TERRAIN DATA for Systems

Battlespace Command and Control ATD (CECOM)

Operations
Intelligence
Fire Support
Air Defense
Logistics
Etc.

Assemble Situation Awareness DB
• Friendly Forces
• Enemy Forces
• Noncombatants
• Logistics
• Intel/Obstacles
• Etc.

Prototype Battlefield Visualization Work Station

Situation Awareness
Tactical Planning
Decision Support
Execution

Battlefield Visualization
Our Objective

Virtual   Live

Constructive

Today

FORCE XXI

Force XXI

Shared Situation Awareness
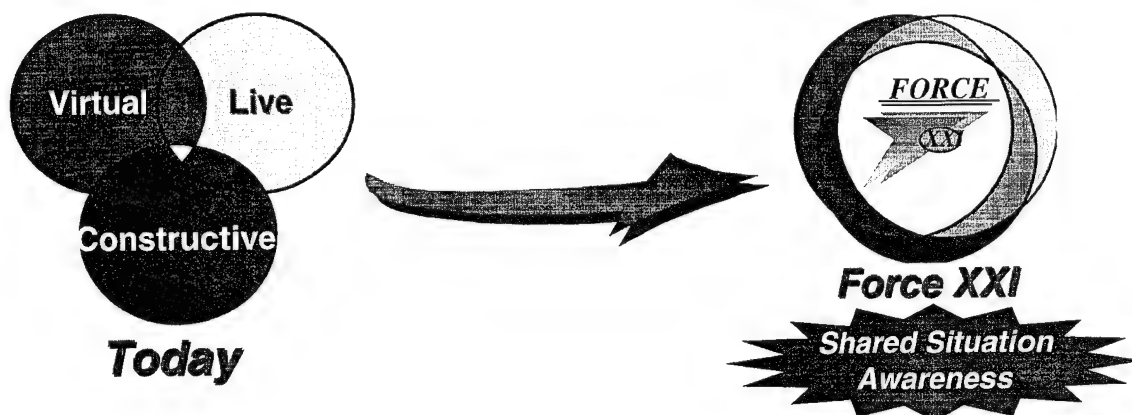
Drive Live, Virtual and Constructive environments into one coherent architecture for America's Army, using the Army Technical Architecture as our guide.

One system to train for, plan, wargame, rehearse, and execute operations
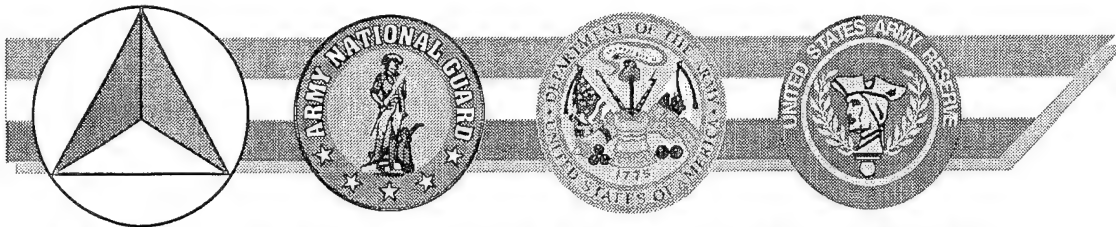
Reserve Component Automation System

Briefing for

Advanced Planning Briefing to Industry
29 November 1995

Reserve Component Automation System

The RCAS Vision
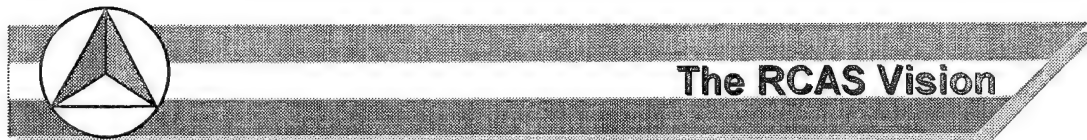
RCAS is the Information System of Choice for the Army Reserve Component
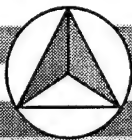
Reserve Component Automation System

Provide the Army Reserve Component with an Integrated Delivery and Applications System that is cost effective and supports the day-to-day administrative, operational, and moblization needs.

"HAS NOT CHANGED"

3
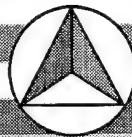
What is RCAS?

Reserve Component Automation System
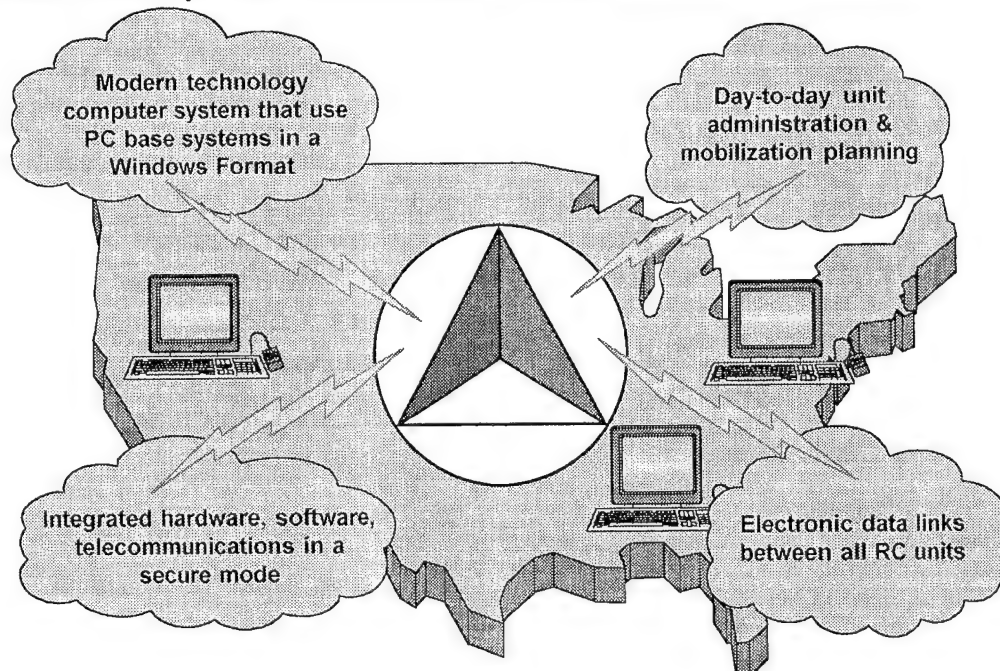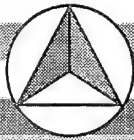
Modern technology computer system that use PC base systems in a Windows Format

Day-to-day unit administration & mobilization planning

Integrated hardware, software, telecommunications in a secure mode

Electronic data links between all RC units

3

Reserve Component Automation System

Assembled by LTG Baca to:

- identify problem areas
- develop corrective actions

Membership

- PEO STAMIS (Mr. Austin, Team Lead)
- Active Army
- ARNG
- USAR
- Contractors

Recommendations

- ✓ Establish an ARNG/USAR Customer Focus Team
- ✓ Consolidate data servers at STARC/MUSARC level
- ✓ Utilize PCs as user terminals
- ✓ Connect all RCAS sites
- ✓ Remove the Multilevel Security requirement
- ✓ Replace selected applications with commercial off-the-shelf software (COTS) and DOD software reuse (GOTS)

4
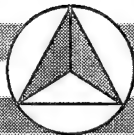
Validation Assessment Team (VAT)
1 April - 19 July 1995

Reserve Component Automation System

Assembled by LTG Baca to:

- Validated "Red" Team's recommendations
- Develop program wide plan for implementation
- Determine cost implications
- Determine final architecture and plans for implementation
- Get user Input
- Restructure the RCAS contract to accommodate the revised solution

Membership

Active Army	PMO
ARNG	Boeing Information Systems
USAR	Support contractors

Recommendations

- ✓ PC based Applications executed locally at workstations
- ✓ Centralized Master Data Base of Record at STARC/MUSARC level
- ✓ DB Query servers at med/large sites
- ✓ C2 security on All platforms
- ✓ Red/Black secure processing at Battalion and above
- ✓ Increased user involvement in deployment/software development/testing/sustainment

5
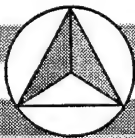
Reserve Component Automation System

Architecture:

- PC Based (46,194 Program provided and 10k provided by users & upgraded by program)
- Centralized Master Database of Record (DBOR) at STARC/MUSARC
- DB query servers at large/medium sites
- Applications executed locally at workstations
- C2 security on all platforms
- RED/BLACK Secure Processing at Battalions and above

Software:

- RCAS integrated database (relies heavily on use of GOTS and COTS)
  - Reverse engineer database from Legacy Systems and RCAS Block 1/2 data products
  - External Interface Broker running at the DBOR
  - Major reduction in enterprise modeling and functional area planning costs
- Mission support software for all RCAS functionality through hosted GOTS and COTS-based development
- Joint rapid application development with end-users

Testing:

- Integrated with the software development processes
- Heavy user involvement
- Uses Operational Test and Evaluation Sites

6
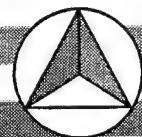
Reserve Component Automation System

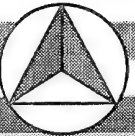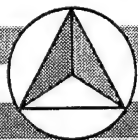| PROCESS	Small Sites 16 or less workstations	Large Sites 17 or more workstations	STARC/MUSARC
Site Survey	Command	Boeing	Boeing
Server/Telecom Design	Boeing	Boeing	Boeing
Site Prep Electrical	Command	Command	Command
Site Prep Telecom Hub	Command	Command	Boeing
Site Prep LAN Wiring	Command	Boeing	Boeing
Outside Plant	N/A	Boeing	Boeing
Circuit Ordering	Command	Command	Command
Workstation Installation	Command	Command	Command
Server Installation	N/A	Boeing	Boeing

7
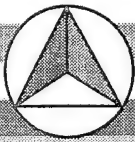
Reserve Component Automation System

Characteristics Provided By The Program

- Maintenance - contractor provided on all critical (telecom, servers, database) RCAS equipment for 7 years
- Service Support Center - Combined NCC and Help Desk provide 12 hour, 7 day/week network monitoring and support for command-level System Administrators (SA). SA support users in their command.
- SA Training
    - RCAS specific training provided by Boeing
    - Funds are provided for commercial training
- User Training
    - CD ROM or Video for OA Software

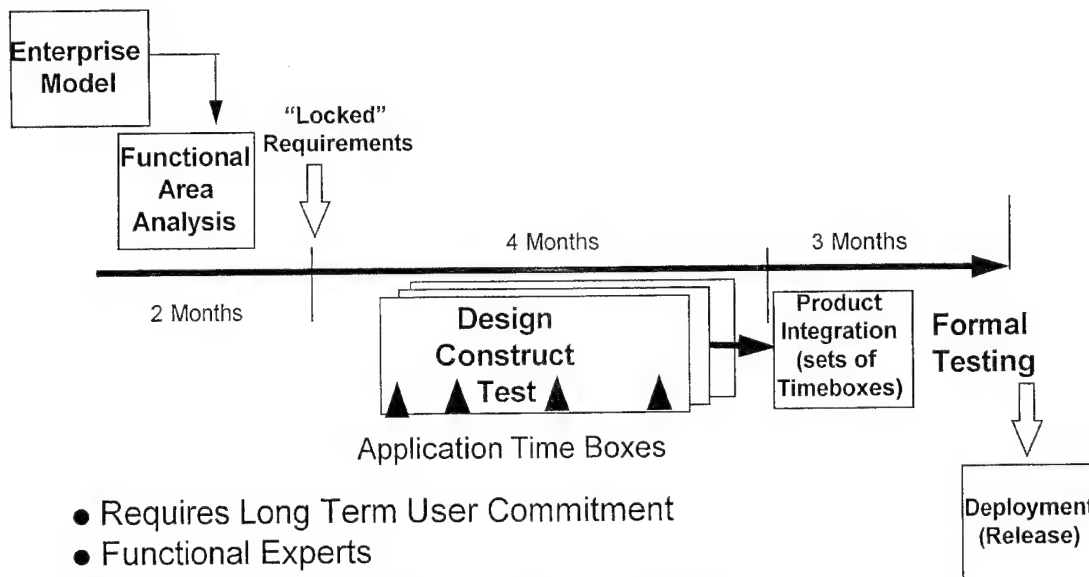### Characteristics Provided By The User

- Electricity Costs
- Consumables
- Maintenance on PCs and printers after 3 years when extended warranty expires
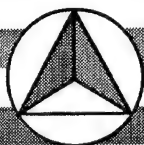- Manage telecom lines (PMO MIPR funds)

8

Software Development Strategy

Reserve Component Automation System

Enterprise Model

Functional Area Analysis

"Locked" Requirements

2 Months

4 Months

3 Months

Design Construct Test

Application Time Boxes

Product Integration (sets of Timeboxes)

Formal Testing

Deployment (Release)

- Requires Long Term User Commitment
- Functional Experts
- Works with Developers throughout process
- AGR and ADSW

9

Points of Contact for Contracting

Reserve Component Automation System

Information System Selection & Acquisition Agency
Mr. Lee H. Harvey
Attn ISSAA-ABE
2461 Eisenhower Av.
Alexandria, VA 22331-0700

(703) 821-6590
or
(703) 339-9350

Boeing Information Services Inc.
Mr Mark D. Connel
Manager, Contracting and Acquisition
7990 Boeing Court
Vienna, Va 22182-3999

(703) 821-6541

10

Tri-Service Command, Control, and Communications Programs Summary

Robert F. Giordano

U.S. Army Communications-Electronics Command Research, Development and Engineering Center Fort Monmouth, New Jersey

29 November 1995

1
C# 0201-5

C3 Vision

✧ Transparent Communication Between and Across Command Levels/Echelons—"Seamless" Communication

✧ Common Architecture as a Framework to Achieve Transparent Distribution of Information

✧ Commonality Where Common Elements are Appropriate (e.g., Decision-Making Toolkit)

(Right Information, Right Place, Right Time)
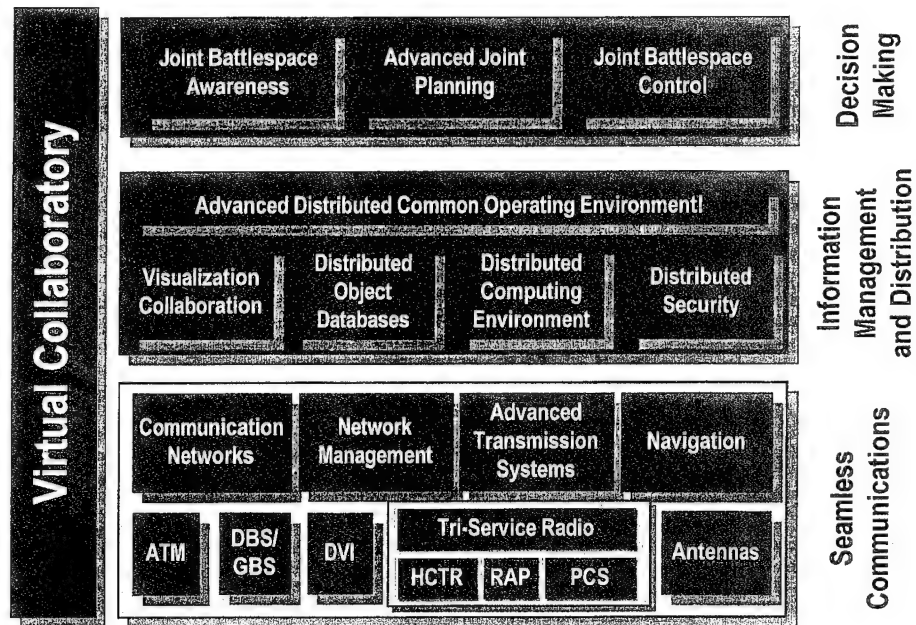
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Command, Control, & Communications

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Interconnected Laboratories:
A Tool to Improve Interaction

MAGIC

ATD NET

JADE

A Possible DISN LES Spring 1996

C3ISG inc

Tri-Service Technology Focus

C4I for the Warrior Architecture

- Distributed
- Secure
- Survivable
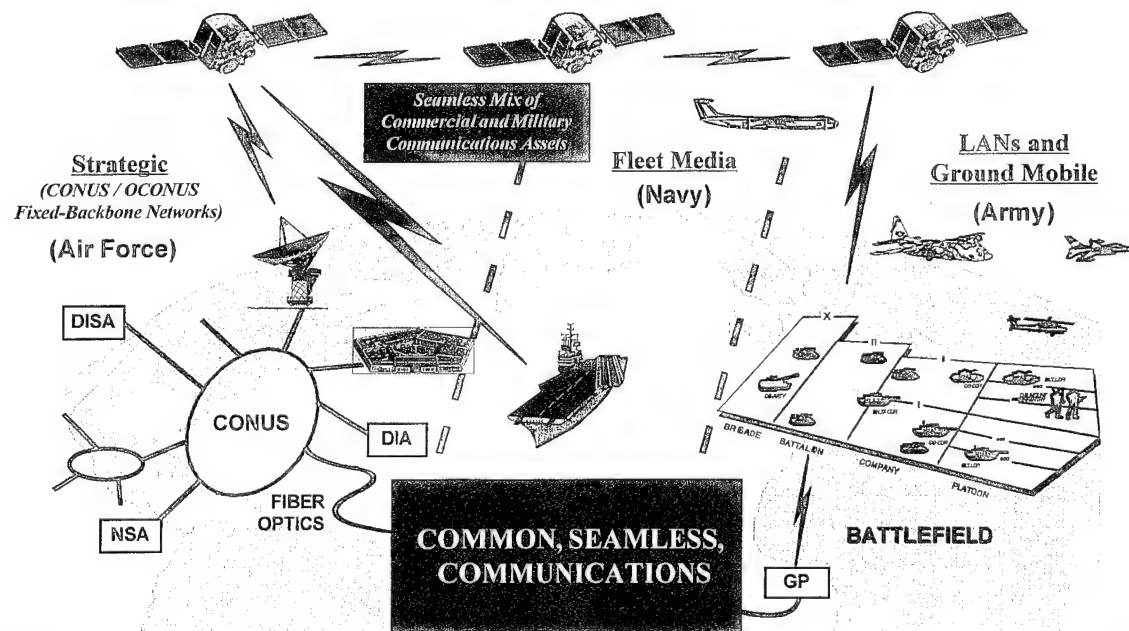- Adaptive
- Consistent in Perception for Decision Making

Virtual Collaboratory

Decision Making

Joint Battlespace Awareness	Advanced Joint Planning	Joint Battlespace Control

Information Management and Distribution

Advanced Distributed Common Operating Environment!

Visualization Collaboration	Distributed Object Databases	Distributed Computing Environment	Distributed Security

Seamless Communications

Communication Networks	Network Management	Advanced Transmission Systems	Navigation

ATM	DBS/GBS	DVI	Tri-Service Radio			Antennas
			HCTR	RAP	PCS	

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Seamless Global Communications

Seamless Mix of Commercial and Military Communications Assets

Strategic
(CONUS / OCONUS Fixed-Backbone Networks)
(Air Force)

Fleet Media (Navy)

LANs and Ground Mobile (Army)

DISA

CONUS

DIA

NSA

FIBER OPTICS

COMMON, SEAMLESS, COMMUNICATIONS

GP

BATTLEFIELD

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Seamless Communications
Goals

+ Transparent Access to and Use of Commercial Services

+ Secure Connectivity Between Theater and Sanctuary

+ Utilize Military and Commercial Infrastructures

+ Automatically Accommodate a Range of Transmission Media, Bandwidths, Standards, and Protocols

+ Provide Uniform Information Infrastructure to Handle Voice, Data, Graphics, Imagery, and Video
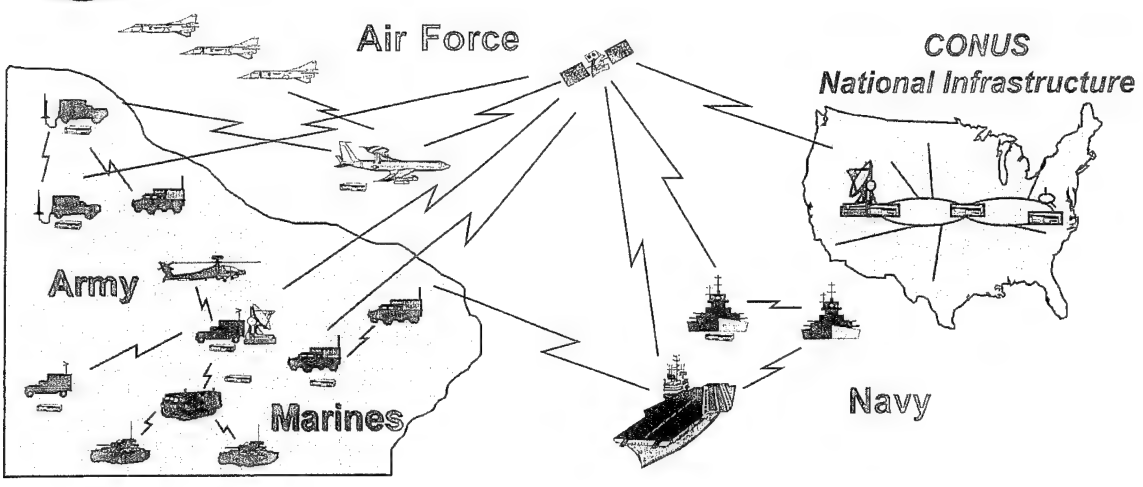
+ Increased Capacity to the Warfighter

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Tri-Service Seamless Communications Architectural Elements

Joint ATM Architecture

Air Force

CONUS National Infrastructure

Army

Marines

Navy
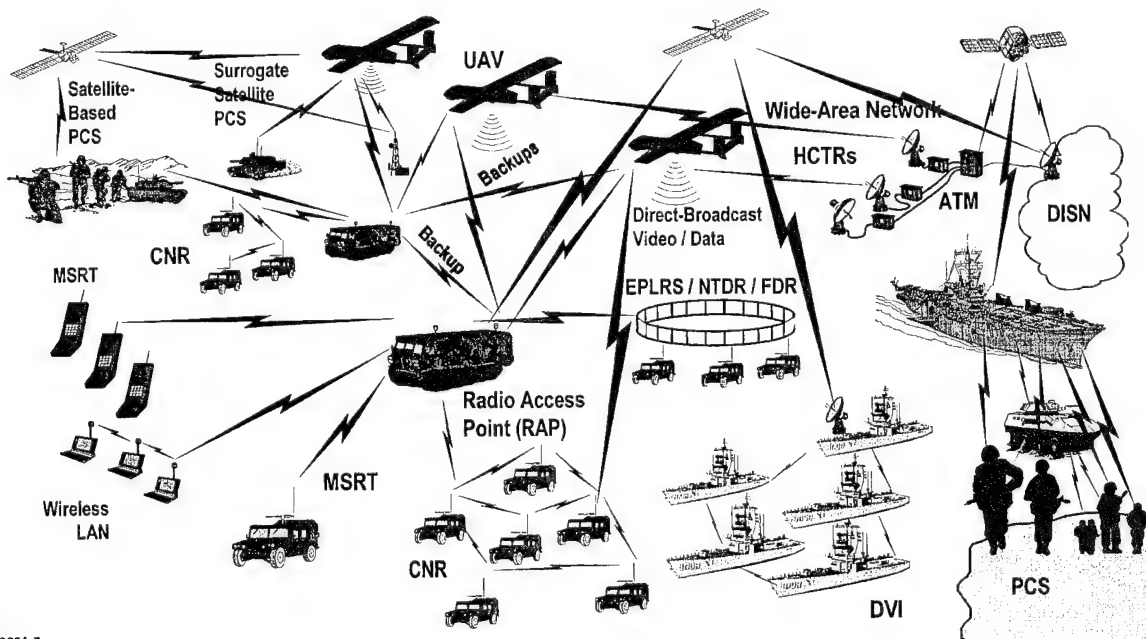
- ❖ Leverage Commercial Technologies
- ❖ Develop Enhancements to Commercial Products
- ❖ Perform Joint Testing

- ❖ Address Unique Communications Needs
  - ❖ Forward Error Correction
  - ❖ Network Management
  - ❖ Survivable Protocols

9
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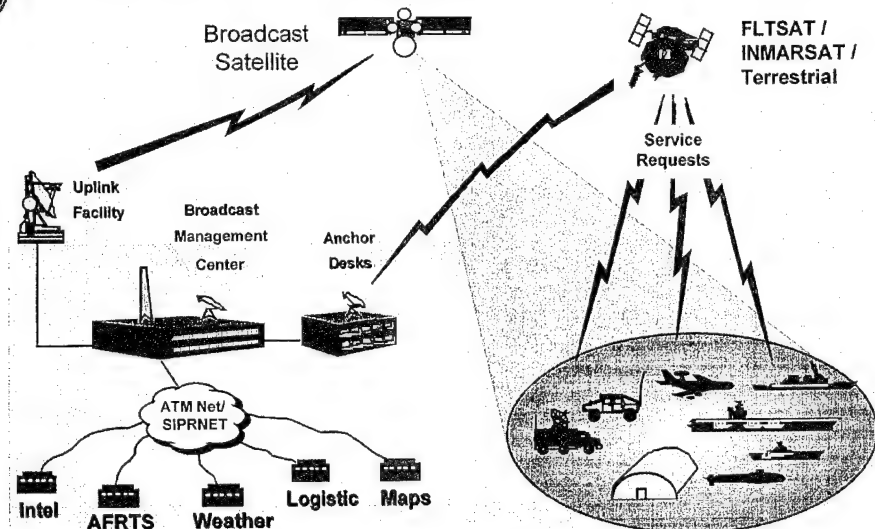
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ATM-Enabled MSE Network
Unified Endeavor

HMMWV

Whiteboard Platform — ATM — MSRT — 1st

BCV

DMAIN SEN

1,024 kbps

DREAR LEN

ATM-Enabled MSE Backbone

1st BDE SEN

1,024 kbps

1,024 kbps

III Corps ICRC
Fort Hood, TX

DTAC SEN

ITAC   Washington, DC

FORE

ATM

ATM   GTE

ATM   FORE

USACOM
Norfolk, VA

PROTEUS WAN
All ATM / DS3

TEC
Fort Belvoir, VA
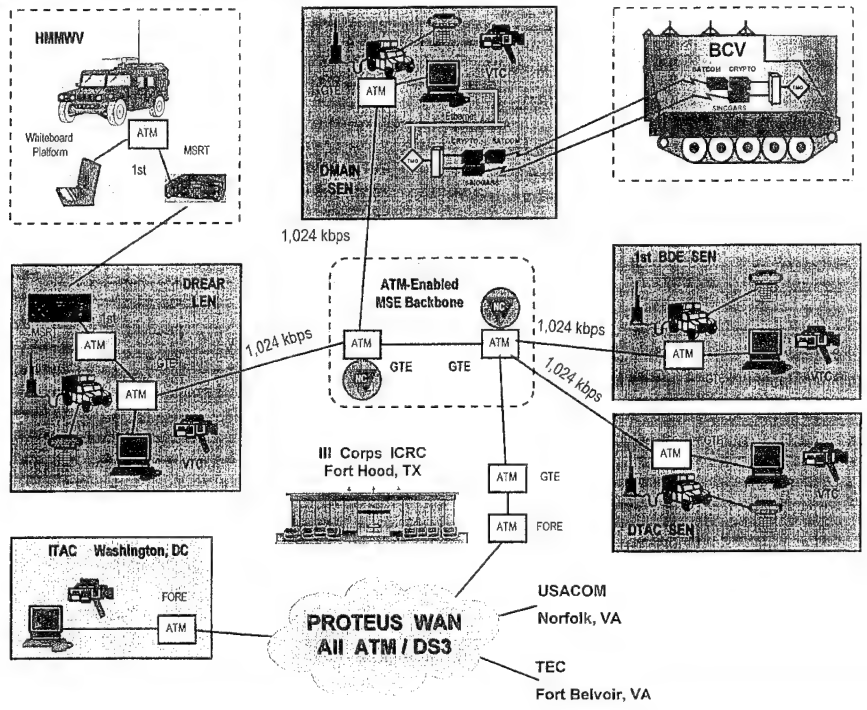
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Global Broadcast Service (GBS)

- ✦ Provide High-Speed Data Dissemination
- ✦ Develop Applications and Concepts to Influence Joint GBS System Design

- ✦ Apply Low-Cost Commercial Technology to Military GBS Needs
- ✦ Offload Traffic from Legacy Communications Systems
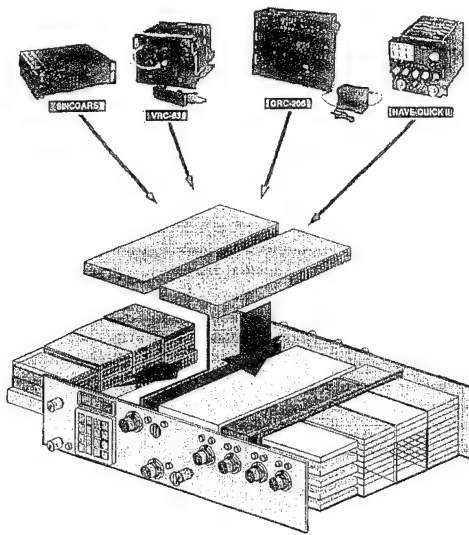
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Global Broadcast System
JWID
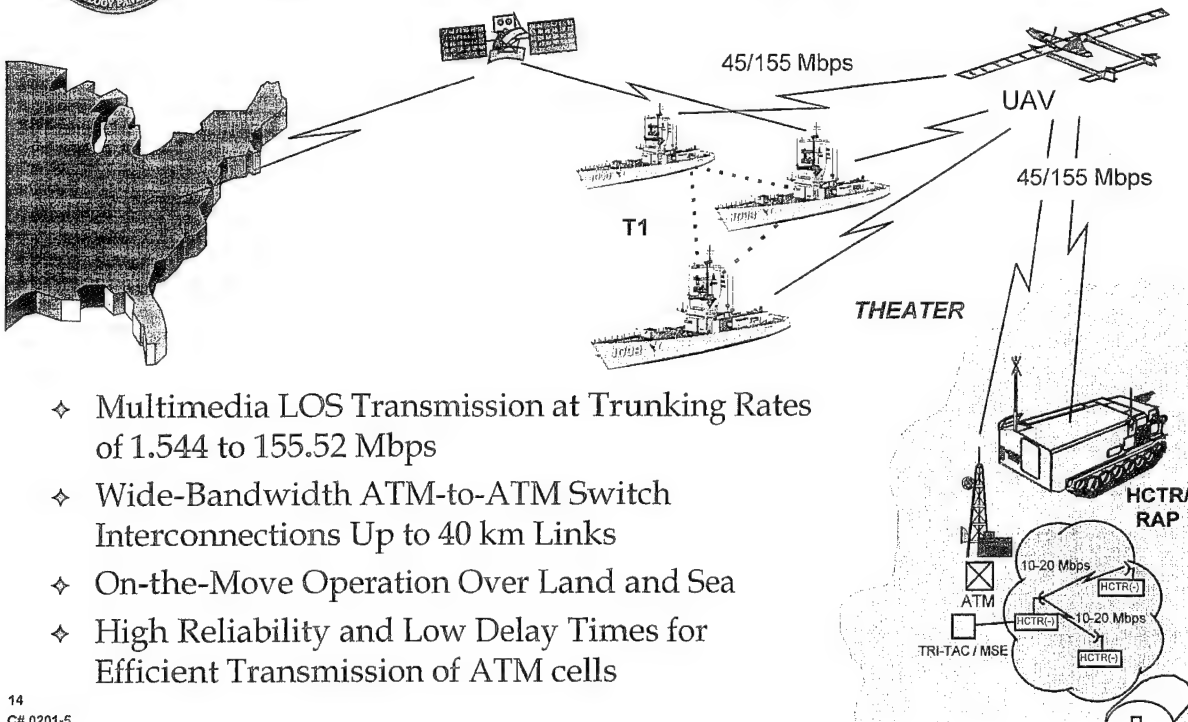

RECEIVE SITES
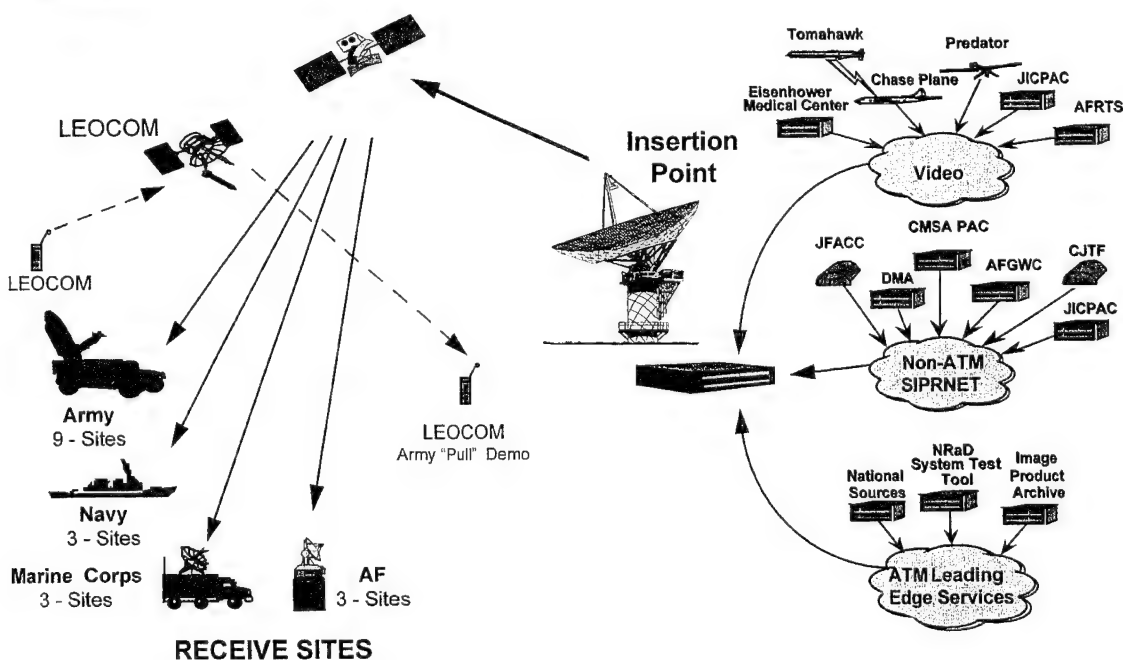
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Tri-Service Radio
Objectives

- ❖ Modular, Open-System Architecture Based on Widely-Accepted Commercial Standards
- ❖ Software Re-Programmable
- ❖ 2-MHz Through 50-GHz Operations
- ❖ Interoperable With Legacy Radios
- ❖ Simultaneous Channels
- ❖ High Capacity Waveforms
- ❖ Embedded Networking Capability
- ❖ LPI/LPD Capable
- ❖ Secure and Anti-Jam
- ❖ GPS and Cellular Embedded
- ❖ Commercial Market Potential

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High Capacity Trunk Radio/
Radio Access Point (HCTR/RAP)

45/155 Mbps

UAV

45/155 Mbps

T1

THEATER

HCTR/ RAP

10-20 Mbps

HCTR(-)

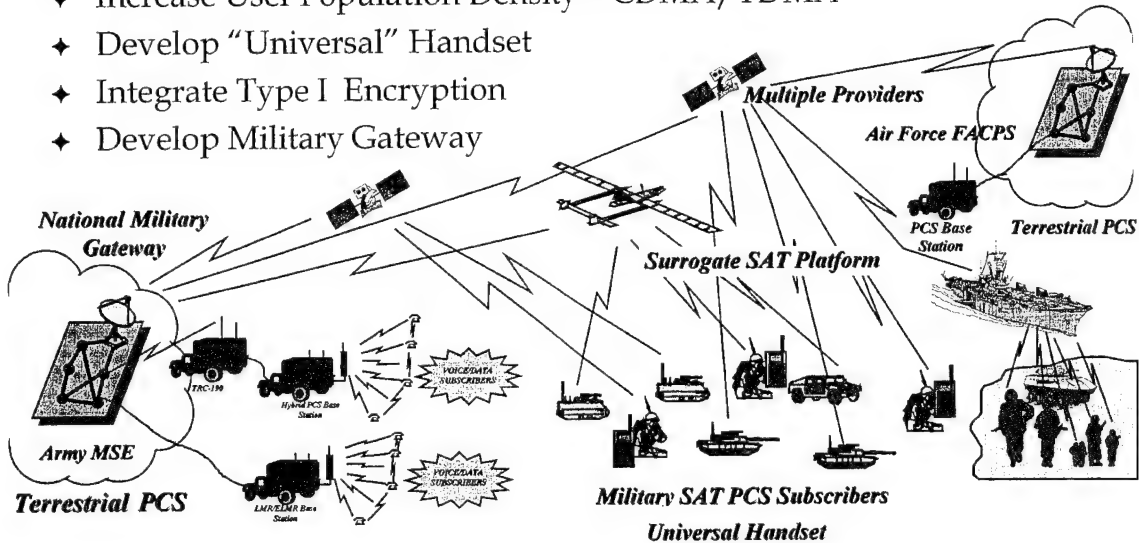ATM

HCTR(-) 10-20 Mbps

TRI-TAC / MSE

HCTR(-)

- ❖ Multimedia LOS Transmission at Trunking Rates of 1.544 to 155.52 Mbps
- ❖ Wide-Bandwidth ATM-to-ATM Switch Interconnections Up to 40 km Links
- ❖ On-the-Move Operation Over Land and Sea
- ❖ High Reliability and Low Delay Times for Efficient Transmission of ATM cells
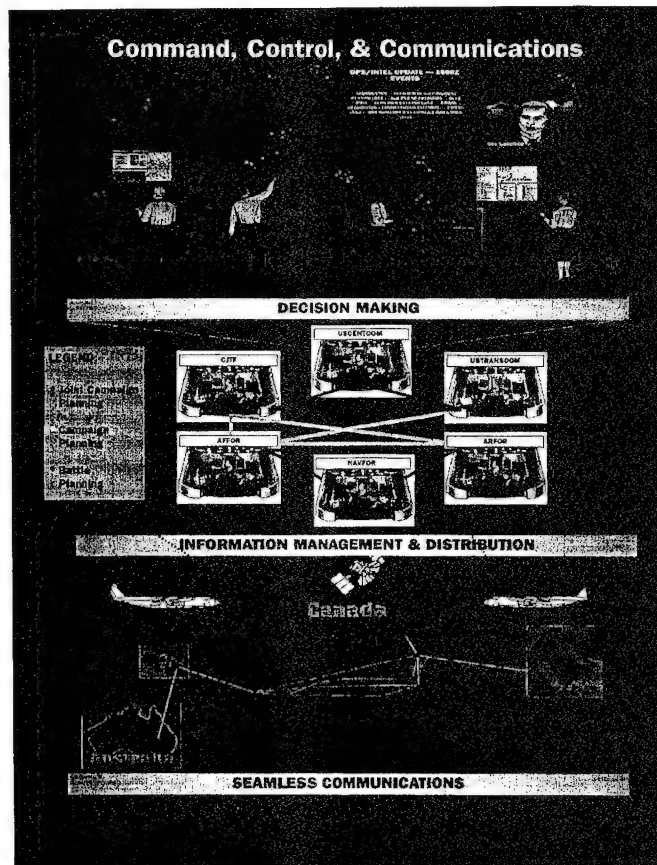
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Personal Communications System

- Use Commercial PCS for Mobile Users — Data Capability to 125 kbps
- Increase User Population Density — CDMA/TDMA
- Develop "Universal" Handset
- Integrate Type I Encryption
- Develop Military Gateway

Multiple Providers

Air Force FACPS

National Military Gateway

PCS Base Station

Terrestrial PCS

Surrogate SAT Platform

Army MSE

Terrestrial PCS

Military SAT PCS Subscribers

Universal Handset

Command, Control, & Communications

DECISION MAKING

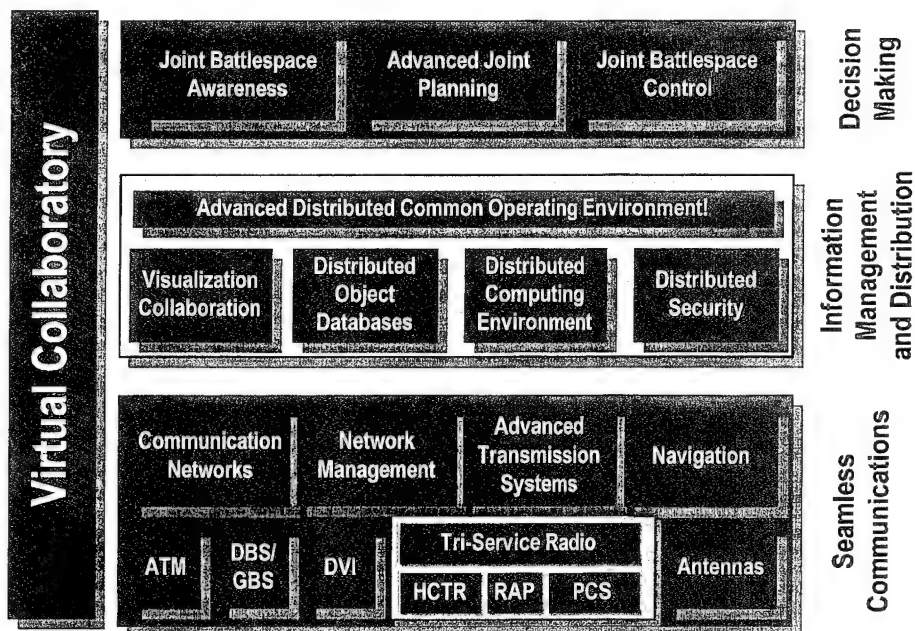INFORMATION MANAGEMENT & DISTRIBUTION

SEAMLESS COMMUNICATIONS

Tri-Service Technology Focus

C4I for the Warrior Architecture

- Distributed
- Secure
- Survivable
- Adaptive
- Consistent in Perception for Decision Making

Virtual Collaboratory

Decision Making

Joint Battlespace Awareness	Advanced Joint Planning	Joint Battlespace Control

Information Management and Distribution

Advanced Distributed Common Operating Environment!

Visualization Collaboration	Distributed Object Databases	Distributed Computing Environment	Distributed Security

Seamless Communications

Communication Networks	Network Management	Advanced Transmission Systems	Navigation

ATM	DBS/GBS	DVI	Tri-Service Radio	Antennas
			HCTR	RAP	PCS	

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Information Management and Distribution Goals

✧ Globally Distributed, Dynamically Reconfiguring Heterogeneous Information Infrastructure Which Supports
  ✧ Location Transparency
  ✧ Time-Critical Processing
  ✧ Multilevel Security
✧ Accommodation of Hybrid Configurations Which Support
  ✧ Fixed and Mobile Nodes
  ✧ Multi-Echelon Networks
✧ Distributed Database Management Which Supports
  ✧ All Classes of Data
  ✧ Consistency, Concurrency, and Fault Tolerance
✧ Individual and Group Interfaces Which Support
  ✧ Natural User Interfaces
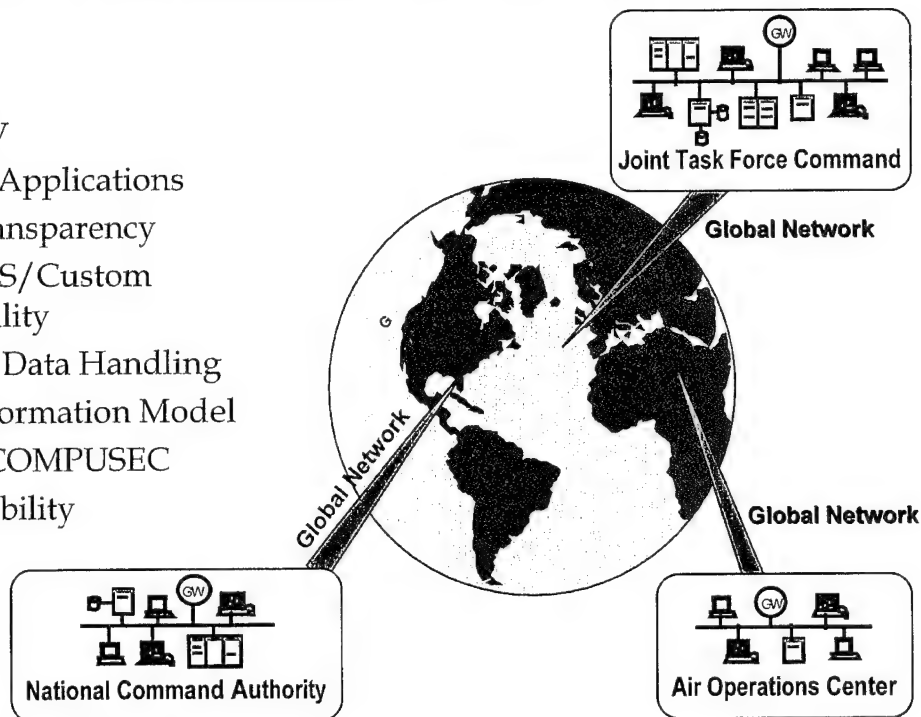 ✧ Collaborative Decision Making

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C3 Information Infrastructure

Functionality

- ◆ Distributed Applications
- ◆ Location Transparency
- ◆ COTS/GOTS/Custom Interoperability
- ◆ Multimedia Data Handling
- ◆ Uniform Information Model
- ◆ COMSEC/COMPUSEC
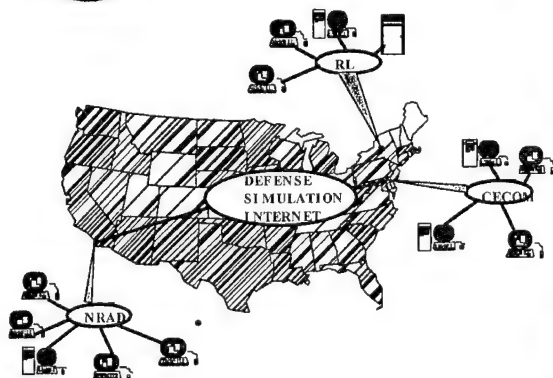- ◆ Reconfigurability

Joint Task Force Command

Global Network

Global Network

National Command Authority

Air Operations Center

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JDL Tri-Service Distributed Computing Testbed

RL

DEFENSE SIMULATION INTERNET

CECOM

NRAD

◆ **Supports Joint Development**

- ◆ AF Lead — Distributed Computing Environment, Multi Media DBMS, and Distributed System Security
- ◆ Navy Lead — Federated DBMS, Secure Protocols
- ◆ Army Lead — Low Bandwidth Distributed Systems

DISTRIBUTED SIMULATION

DISTRIBUTED HETEROGENEOUS DATABASE MANAGEMENT
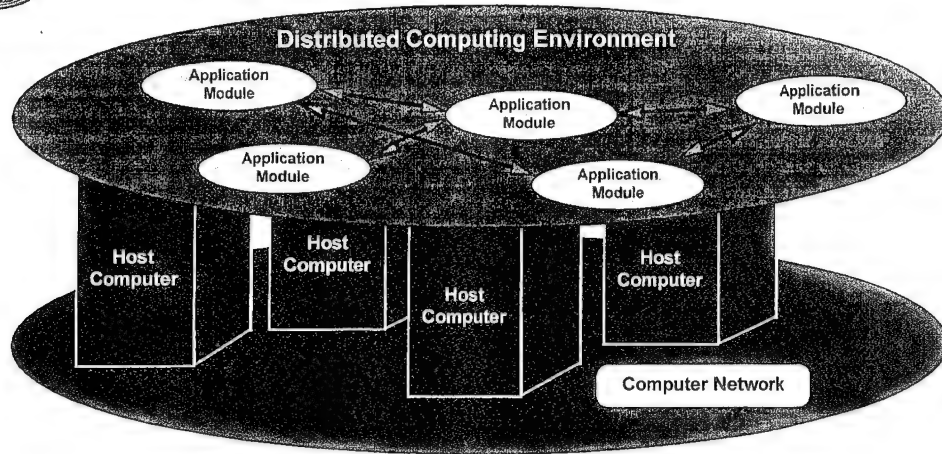
LOCATION TRANSPARENT ACCESS TO MODULES AND DATA

RECONFIGURABLE PARTITIONING

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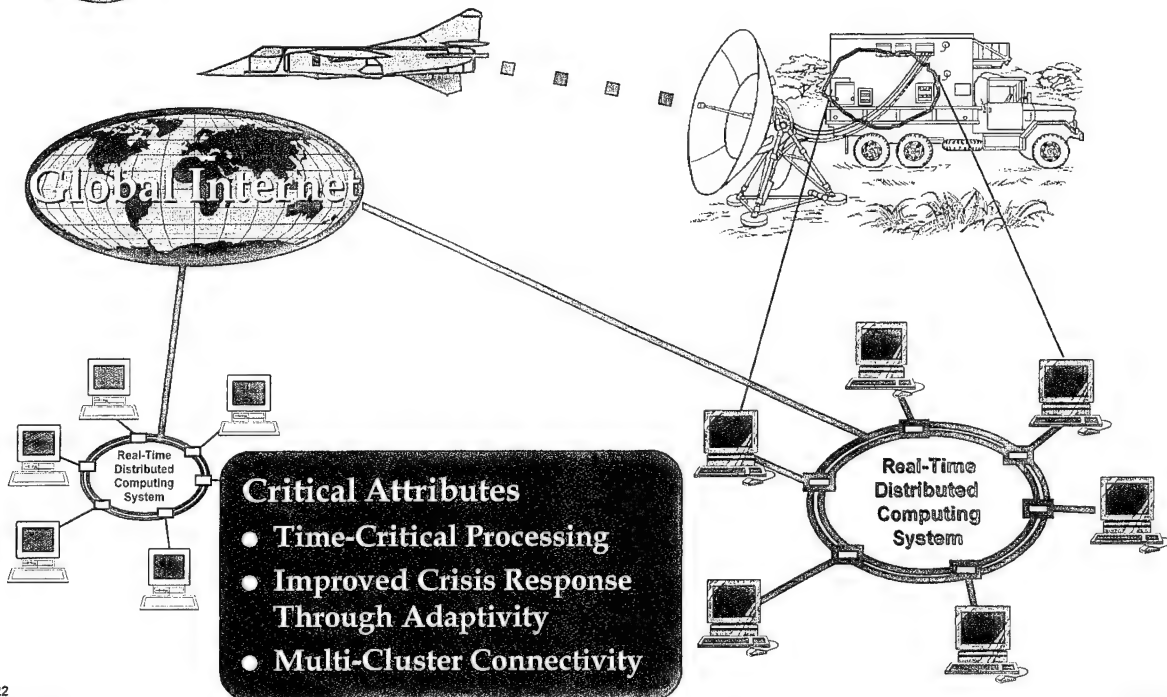# Heterogeneous Distributed Computing Environment

- ✧ Integration of Distributed Processing Elements
- ✧ Environment for Creation of Distributed Applications
- ✧ Environment for Control and Execution of Distributed Applications
- ✧ Location-Independent Access to Processes and Data

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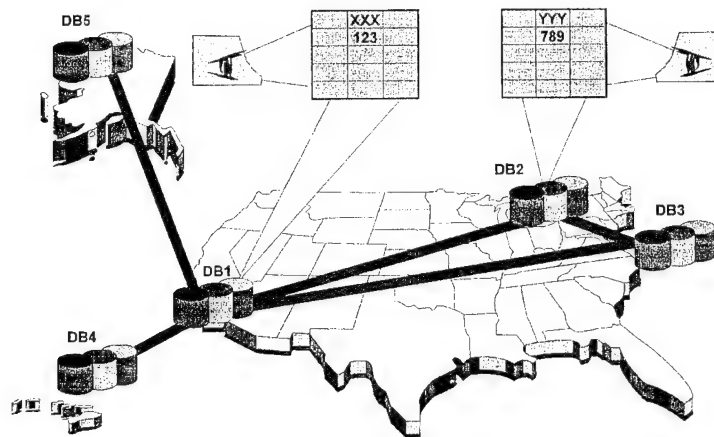
Real-Time Distributed Computing Environment

Critical Attributes
- ● Time-Critical Processing
- ● Improved Crisis Response Through Adaptivity
- ● Multi-Cluster Connectivity

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Distributed Database Management Systems

- ✦ **Location Transparency**
- ✦ **Concurrent Access**
- ✦ **Consistency**
- ✦ **Multimedia Data**
- ✦ **Integrity**
- ✦ **Fault Tolerance**

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Multi-Level Information System Security

Mandatory Access Control (MAC)

Covert Channels

Intrusion Detection

Discretionary Access Control (DAC)

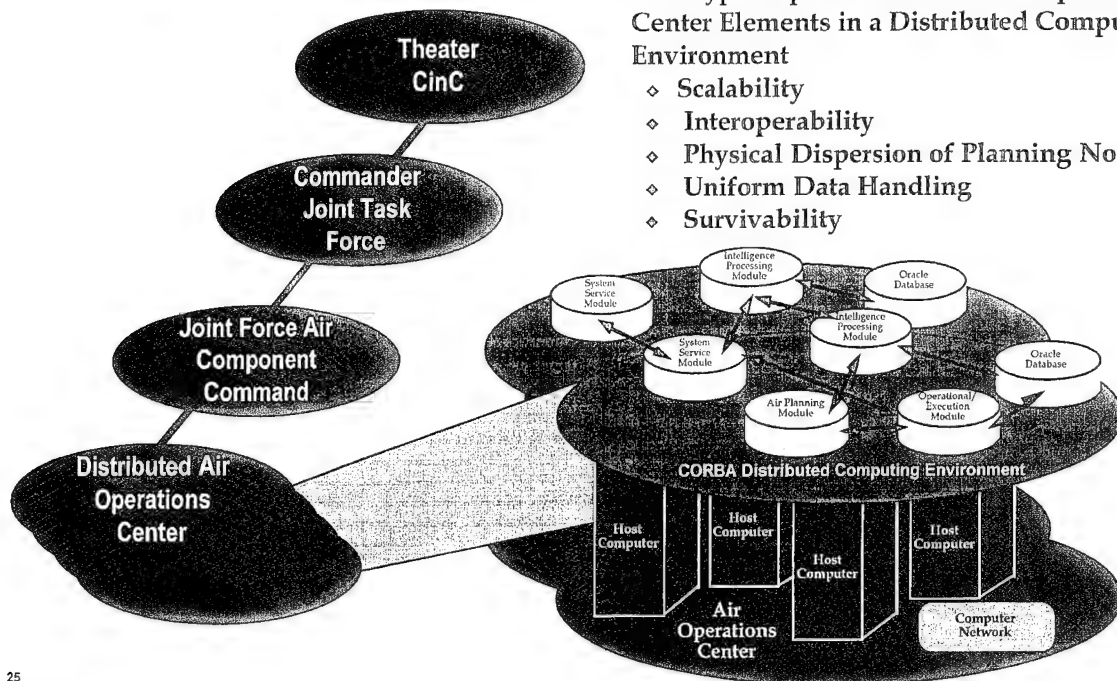**COTS**

Secure Local Area Networks (SLAN)
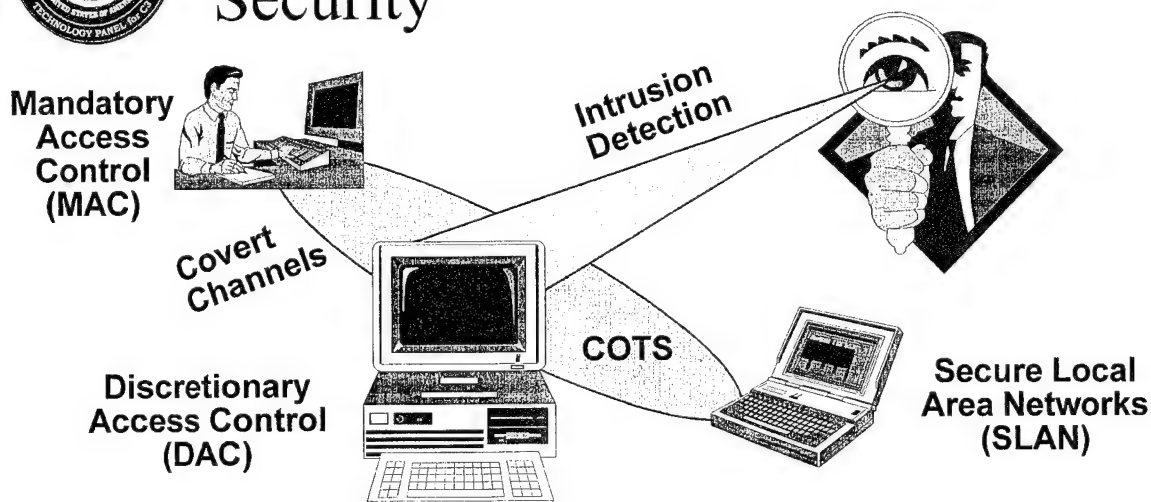
- ✦ Secure Distributed Computing Environments
- ✦ Secure Database Management Systems
- ✦ Adaptive Security Policy
- ✦ Commercial Off-the-Shelf (COTS)
- ✦ Tools

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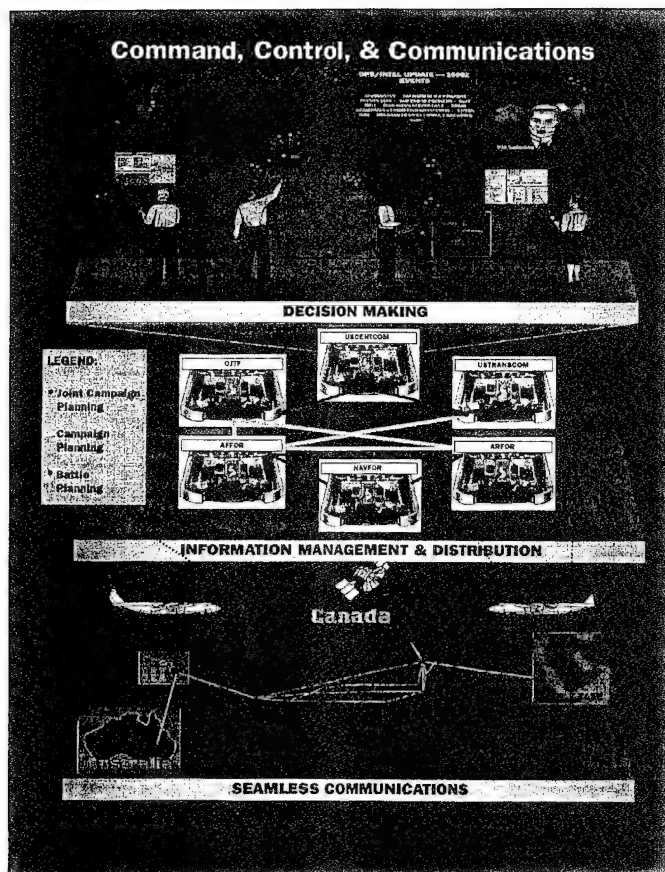
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Distributed Air Operations Center

❖ **Prototype Implementation of Air Operations Center Elements in a Distributed Computing Environment**
  ◇ Scalability
  ◇ Interoperability
  ◇ Physical Dispersion of Planning Nodes
  ◇ Uniform Data Handling
  ◇ Survivability
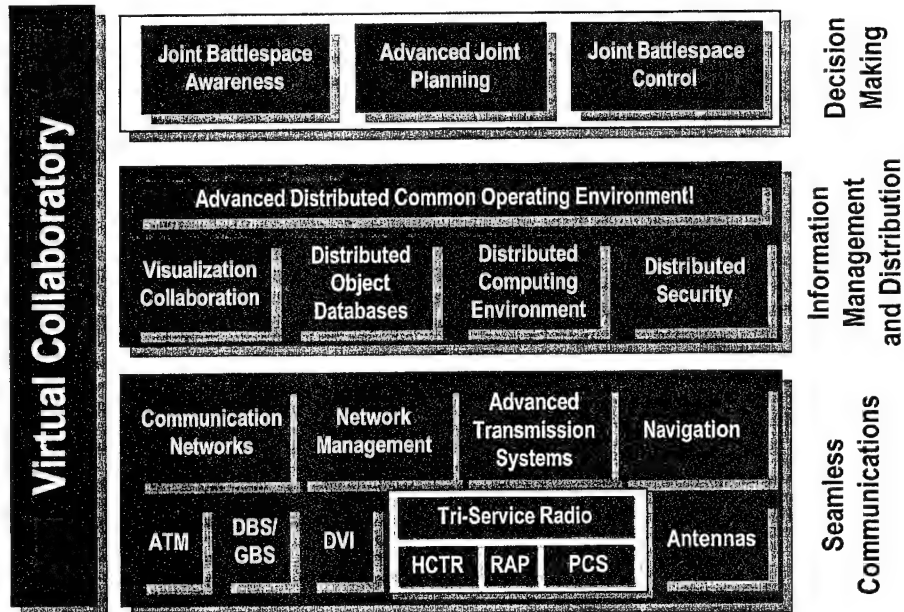
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Command, Control, & Communications

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Tri-Service Technology Focus

C4I for the Warrior Architecture

- Distributed
- Secure
- Survivable
- Adaptive
- Consistent in Perception for Decision Making

Virtual Collaboratory

Decision Making

| Joint Battlespace Awareness | Advanced Joint Planning | Joint Battlespace Control |

Information Management and Distribution

Advanced Distributed Common Operating Environment!

| Visualization Collaboration | Distributed Object Databases | Distributed Computing Environment | Distributed Security |

Seamless Communications

| Communication Networks | Network Management | Advanced Transmission Systems | Navigation |

| ATM | DBS/GBS | DVI | Tri-Service Radio | Antennas |
| | | | HCTR | RAP | PCS | |

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Decision Making Goal/Scope

✦ *Develop the Technology for a Real-Time Joint Service, Common Planning and Execution System*

✦ *The Core will be a Common Operating Environment (COE)*

✦ *Activities Address Three Technology Efforts*

- Tactical Picture and Situation Assessment
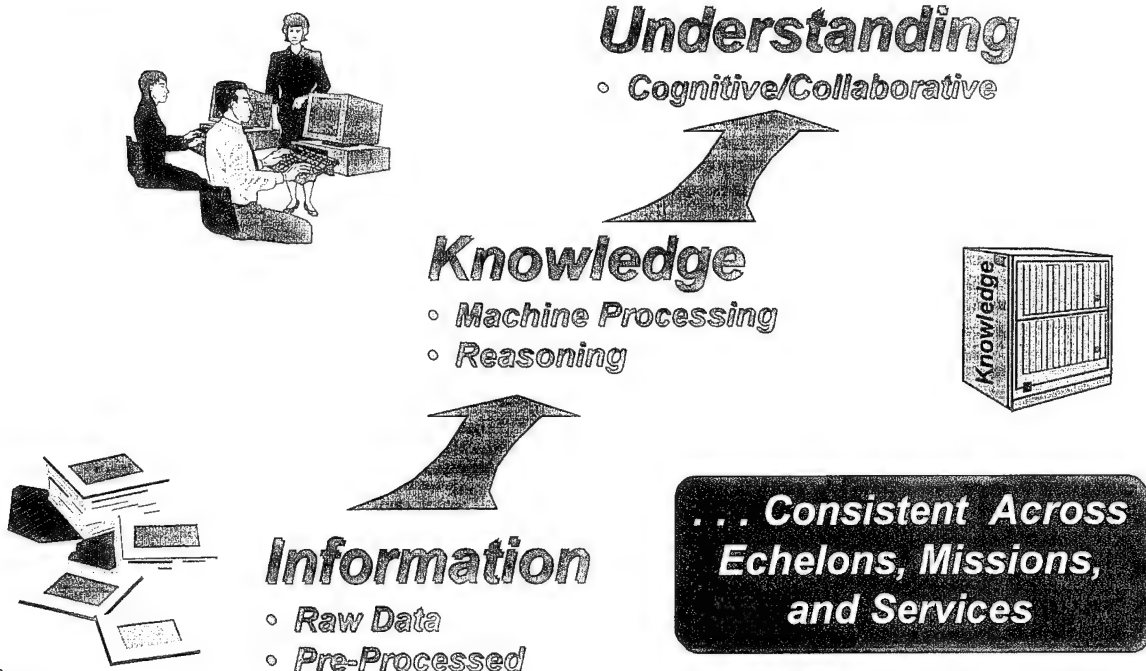- Planning and Resource Allocation
- Dynamic Execution Management

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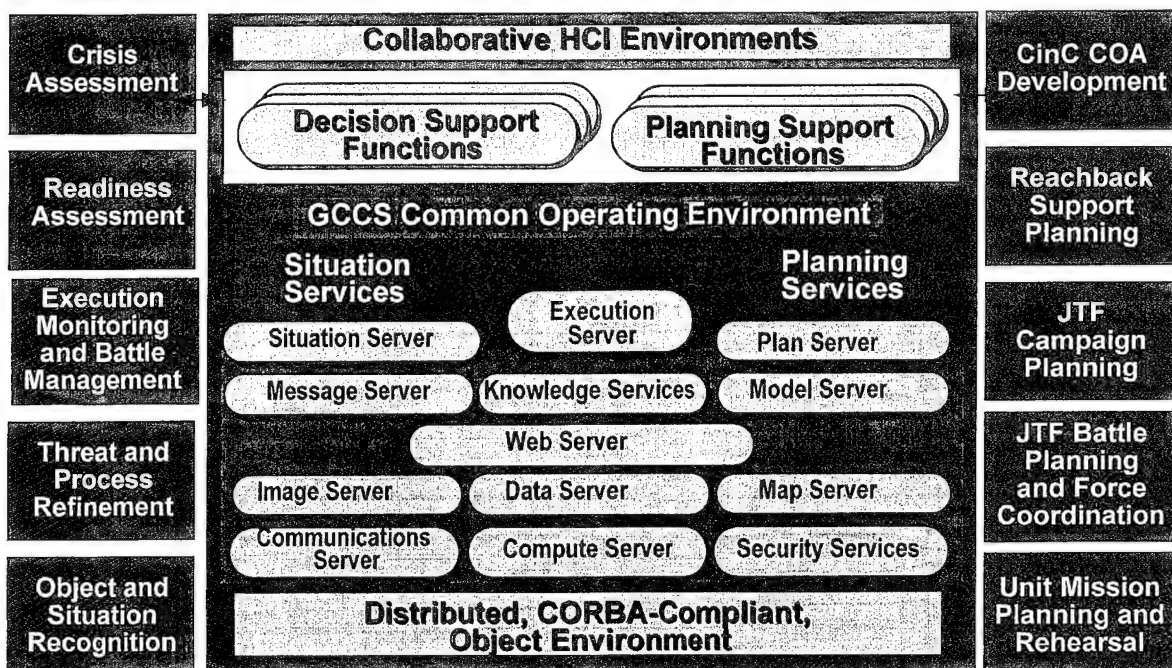# Decision Making Vision
Ascending the Cognitive Hierarchy

Understanding
○ Cognitive/Collaborative

Knowledge
○ Machine Processing
○ Reasoning

Knowledge

. . . Consistent Across Echelons, Missions, and Services

Information
○ Raw Data
○ Pre-Processed

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Common Mission Planning Architecture

Crisis Assessment	Collaborative HCI Environments	CinC COA Development
	Decision Support Functions / Planning Support Functions	
Readiness Assessment	GCCS Common Operating Environment	Reachback Support Planning
Execution Monitoring and Battle Management	Situation Services / Planning Services — Situation Server, Execution Server, Plan Server	JTF Campaign Planning
	Message Server, Knowledge Services, Model Server	
Threat and Process Refinement	Web Server	JTF Battle Planning and Force Coordination
	Image Server, Data Server, Map Server	
Object and Situation Recognition	Communications Server, Compute Server, Security Services	Unit Mission Planning and Rehearsal
	Distributed, CORBA-Compliant, Object Environment	

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Battlespace Awareness Vision

The "Virtual Situation Room"

Surveillance Direction

Plan Doctrine
Readiness
Logistics

Environment
Capabilities Connectivity
Execution Status

Operations Direction

Intelligent MSI

Situation Projection

Relevance Filtering

Collaborative Situational Assessment Workspace

EW Data Fusion

EW SSI

Link Data Fusion

Link MSI

Intelligence and Political Assessment

Groupware

ASW Data Fusion

ASW SSI

Cryptologic Data Fusion

Cryptolog SSI

+ Timely, Consistent Understanding of the Battlespace
+ Available to All Warfighters

+ Expedites Planning and Execution Decisions
+ Reduces Fratricide

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Advanced Joint Planning Vision

Theater CinC

Service Component Commanders

Courses of Action
Plan Generation
Plan Refinement
Plan Evaluation
Plan Deconfliction
Plan Preview
Plan Rehearsal

Anchor Desks
• Intelligence
• Logistics
• Weather
• Planning
• Assessment

Joint Force Commander

Tactical Commanders
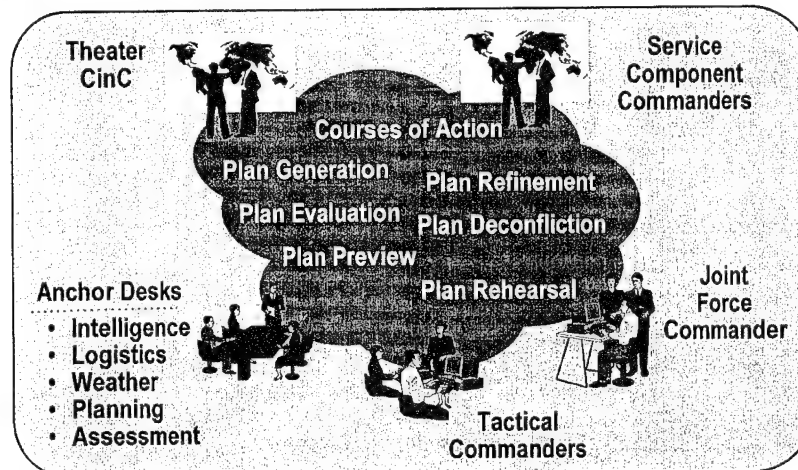
+ Dynamic, Integrated Planning
+ Common Joint Planning "Core"
+ Commonality Reduces Acquisition and Support Costs

+ COA Development Time Reduced at All Echelons
+ In-Theater Logistics Reduced

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Joint Battlespace Control Vision

Visualize

PLAN SITUATION   OPTIONS DOCTRINE

Execute, Coordinate, Monitor

React / Repair

REPLAN
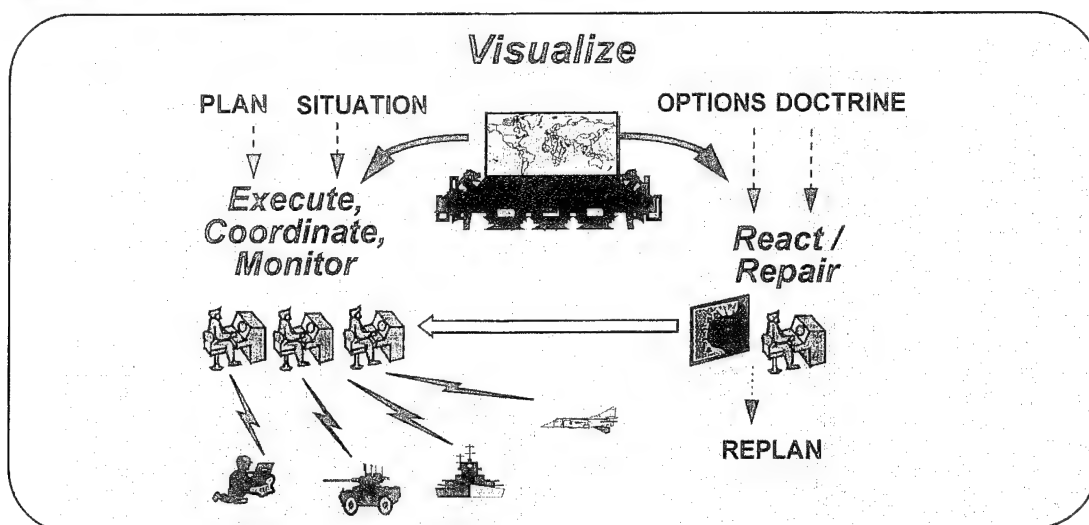
- ✦ Automated, Reactive COA Generation
- ✦ Collaborative, Real-Time Resource Employment
- ✦ Dynamic Plan Repair — Retasking, Retargeting, and Deconfliction
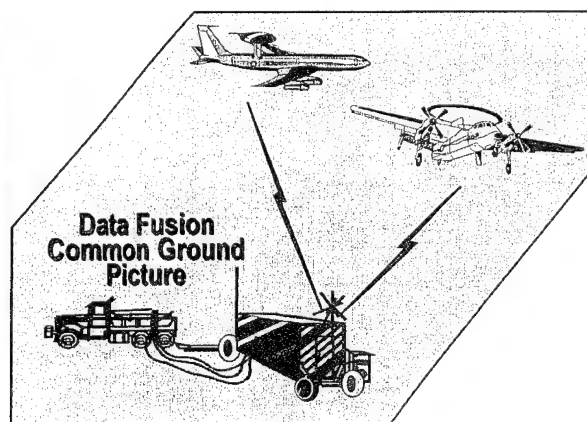
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Technology Demonstration of Theater / Force Tactical Picture

Battlefield Visualization (Army)

Common Tactical Picture

Common Ground Station (Army)*

Data Fusion Common Ground Picture

- ○ Advanced Visualization and 3-D
- ○ Direct Broadcast Satellite Displays
- ○ Feature Extraction and Compression
- ○ Advanced Situation Awareness

* = Completes in FY96

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Command, Control, & Communications

DECISION MAKING

INFORMATION MANAGEMENT & DISTRIBUTION

SEAMLESS COMMUNICATIONS
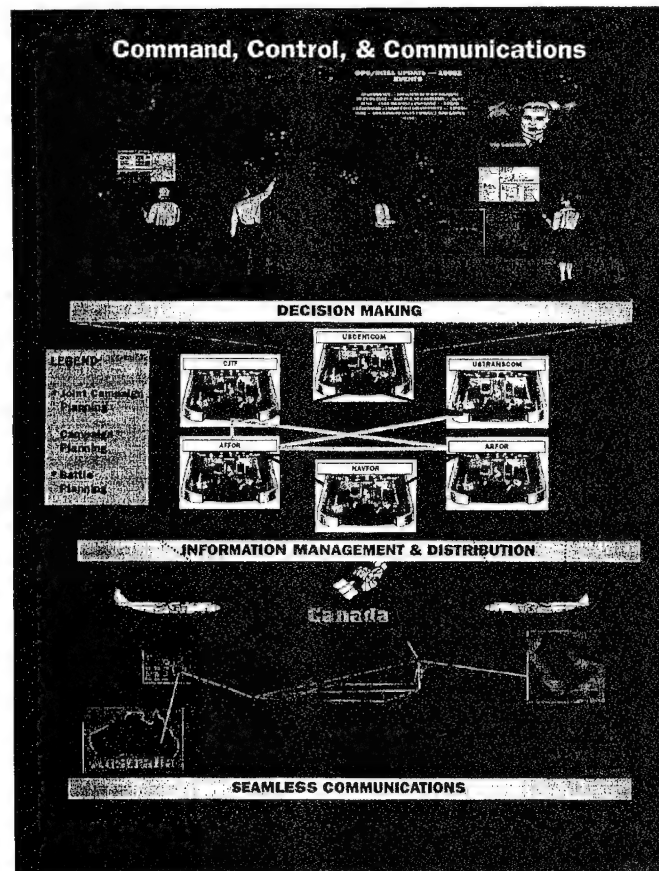
38
C# 0201-5

C3ISG inc

Funding Breakout by Technology Area

Decision Making
20%

Information
Management and
Distribution
26%

Seamless
Communications
54%
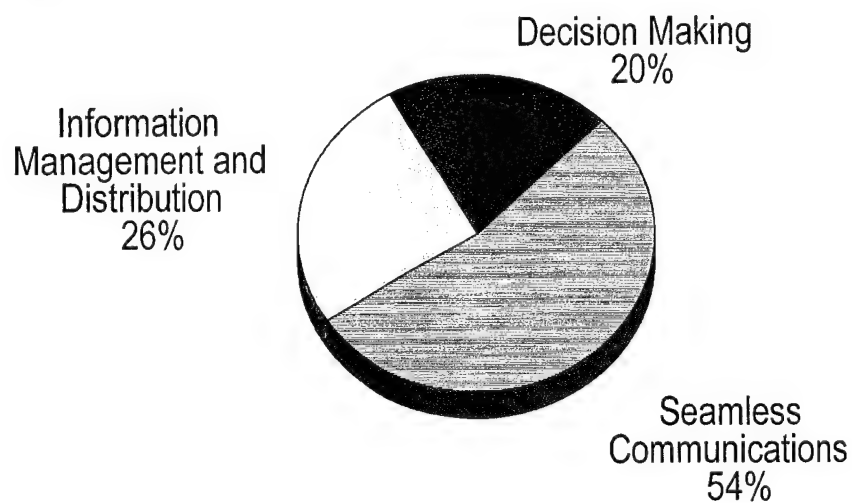
(Based on Final 1995 DDR&E C3 TAP, FY95 Through FY98)
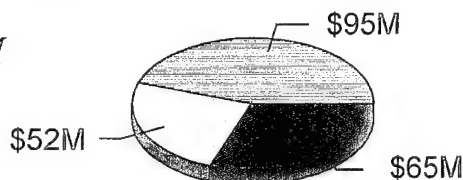
39
C# 0201-5

C3ISG inc

Funding by Technology Subarea

(Based on Final 1995 DDR&E C3 TAP)

$97M

$48M

$37M

FY95 = $182M

$95M

$52M

$65M

FY96 = $212M

$106

$55M

$51M
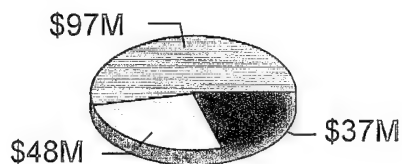
FY97 = $212M

- Seamless Communications
- Information Management and Distribution
- Decision Making
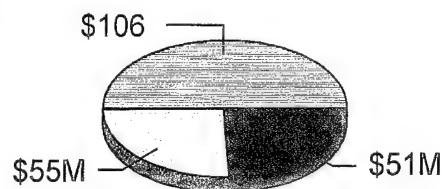
C3ISG inc

Summary/Conclusions

- ❖ Considerable Improvement in Integration of Programs
  - ◇ Continue Emphasis to Institutionalize
  - ◇ Make Sure Tri-Service Engineers "Buy In"

- ❖ Shared Common Goal of Global, Multimedia Information Flow to Enhance Decision Making

- ❖ Recognize Leveraging Multiplies Service Effectiveness

- ❖ Capitalize on Commercial Hardware and Standards for Commonality

- ❖ Use Collaborative Experimentation to Increase Joint Activities

C3ISG inc

BMDO C³ And Information Management Programs
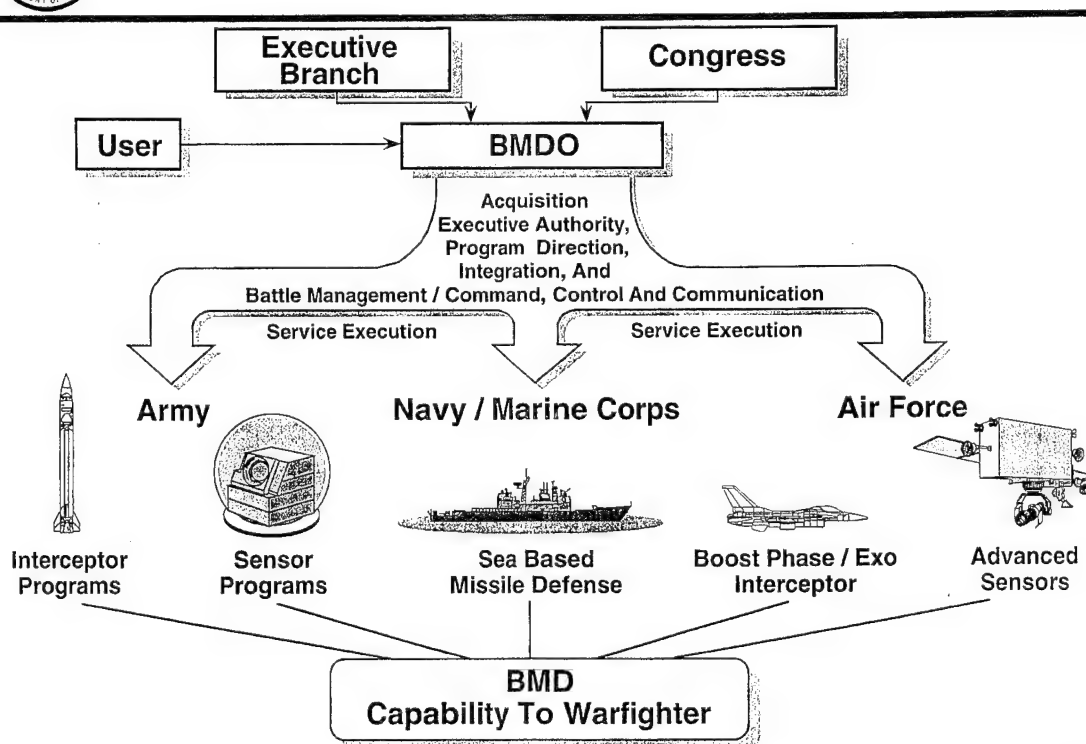# 1995 Advance Planning Briefing To Industry

29 NOV 95

LTG Malcolm R. O'Neill, USA
Director
Ballistic Missile Defense Organization

mj-58325 / 112795

BMD PROGRAM

Executive Branch

Congress

User

BMDO

Acquisition
Executive Authority,
Program Direction,
Integration, And
Battle Management / Command, Control And Communication

Service Execution

Service Execution

Army

Navy / Marine Corps

Air Force

Interceptor Programs

Sensor Programs

Sea Based Missile Defense

Boost Phase / Exo Interceptor

Advanced Sensors

BMD
Capability To Warfighter

mj-39521H / 030895
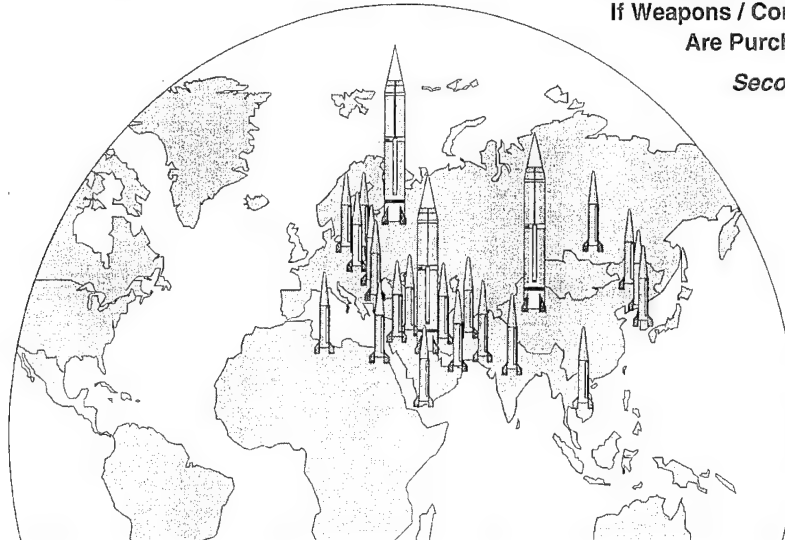
BALLISTIC MISSILE PROLIFERATION

Theater

° Threat Is Here And Now
° Threat Is Proliferating

First Priority

Homeland

° FSU And Chinese Threat Here But
  Attack Is Unlikely
° ROW Threat Projected For First
  Decade Of Next Century (Sooner
  If Weapons / Components
  Are Purchased)

Second Priority

mj-41811 / 061394

FY 95 BALLISTIC MISSILE DEFENSE PROGRAM

Theater Missile Defense

° First Priority
° Acquisition
° $2,332 Million

(80%)

National Missile Defense

° Second Priority
° Technology
  Readiness Program
° $397 Million

(14%)

Advanced Technology
° Third Priority
° Component And
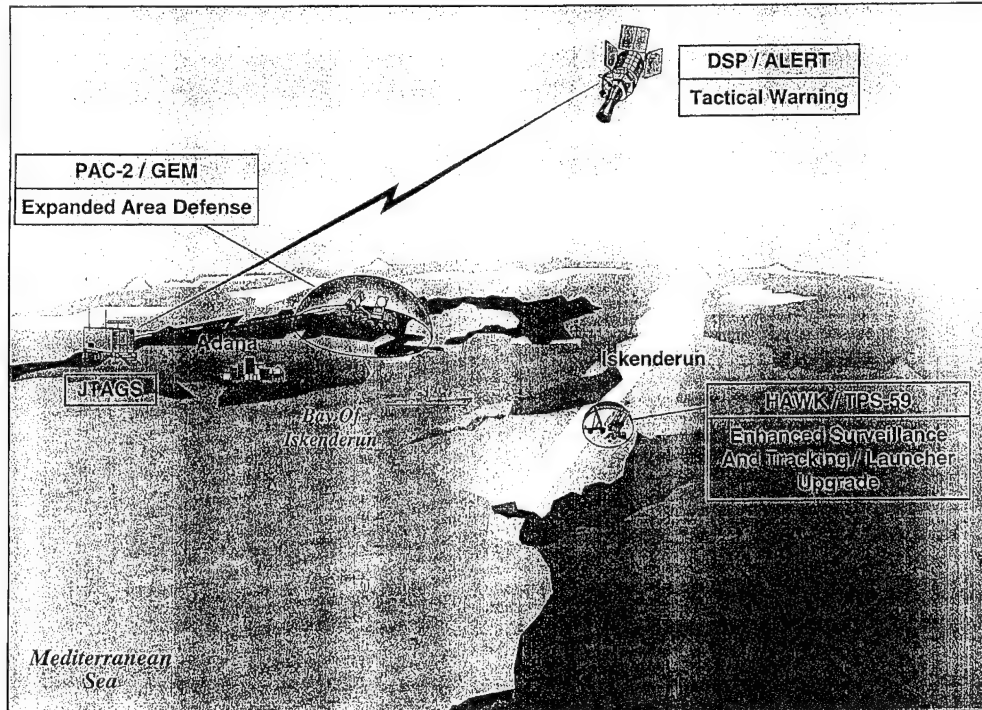 Advanced Concepts
  R&D
° $184 Million
(6%)

Note: Includes Administrative / Management
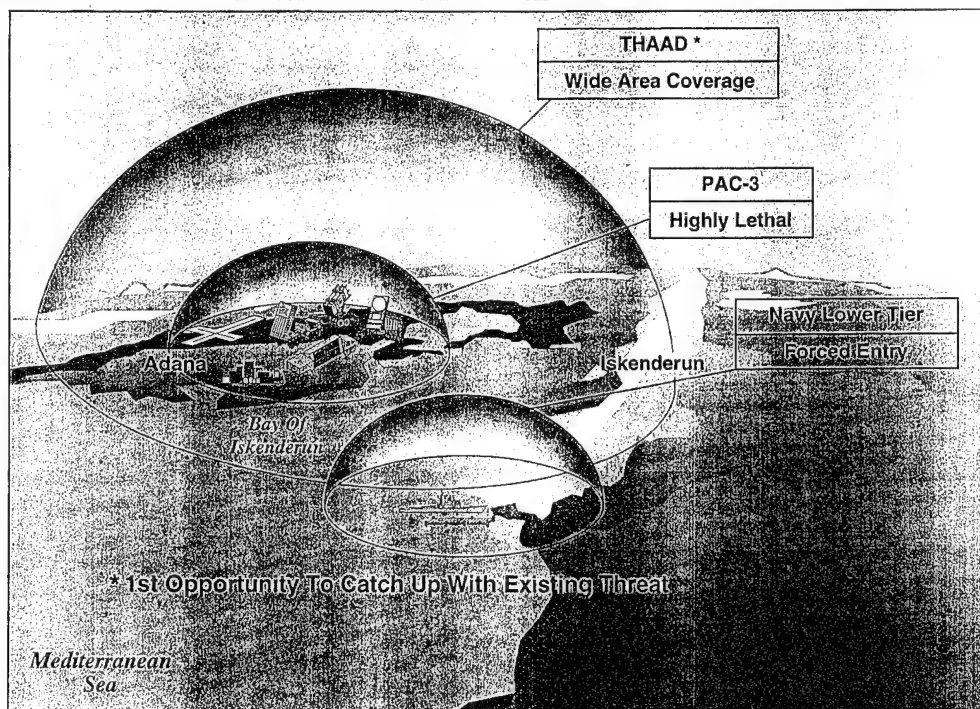Costs Of $186 Million

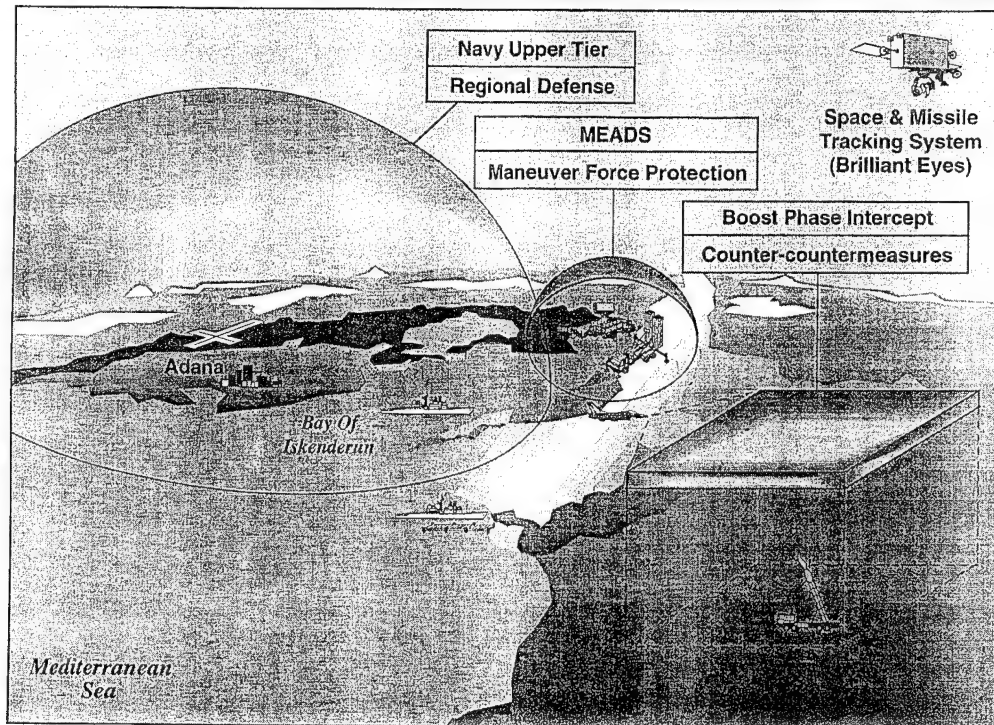mj-50787P / 111595

CURRENT BMDO FIELDED CAPABILITIES - TMD

DSP / ALERT
Tactical Warning

PAC-2 / GEM
Expanded Area Defense

Adana

Iskenderun

JTAGS

Bay Of Iskenderun

HAWK / TPS-59
Enhanced Surveillance And Tracking / Launcher Upgrade

Mediterranean Sea

mj-55059C / 111595

MIDTERM CAPABILITIES - TMD
(FY 97-2002)

THAAD *
Wide Area Coverage

PAC-3
Highly Lethal

Navy Lower Tier
Forced Entry

Adana

Iskenderun

Bay Of Iskenderun

* 1st Opportunity To Catch Up With Existing Threat

Mediterranean Sea

mj-51901H / 111595

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ADVANCED CONCEPTS - TMD
(FY 2002+)

Navy Upper Tier

Regional Defense

MEADS

Maneuver Force Protection

Space & Missile Tracking System (Brilliant Eyes)

Boost Phase Intercept

Counter-countermeasures

Adana

Bay Of Iskenderun

Mediterranean Sea

mj-51902E / 111595

TMD C^3 PROGRAM
MAJOR THRUSTS AND OBJECTIVES

1. Early Warning / Dissemination
- Improved Launch / Impact Point Accuracy
- Reduced Timelines

3. Command And Control Upgrades
- Advanced Decision / Planning Aids
- Link Into GCCS
- Integrate Attack Ops / Passive Defense
- Timely Intelligence Data

TAOC

ADA TOC

Planning / Coordination

AOC / CRC

TFCC / CIC

Processing / Dissemination

- Cueing
- Launch Point
- Impact Point

o Launch Point
o Impact Point

Attack Operations
Passive Defense

2. Communications Interoperability
- Service / Allied Interoperability
- Seamless Warning / Cueing / Weapon Coordination
- Shared Situational Awareness

mj-49095 / 101995

EARLY WARNING AND DISSEMINATION

Stereo DSP Processing	AWACS EAGLE IRST And Laser Ranger
 ALERT JTAGS MILSATCOM	

ALERT / JTAGS
Ground Processing Stations
 	
• Prime Contractor: Aerojet
 	
• Executing Agents
  - Air Force (ALERT)
  - Army (JTAGS)
	Dem / Val Program
	
	• Prime Contractor: Boeing
	
	• Major Subcontractor: Texas Instruments
	
	• Executing Agent: Air Force
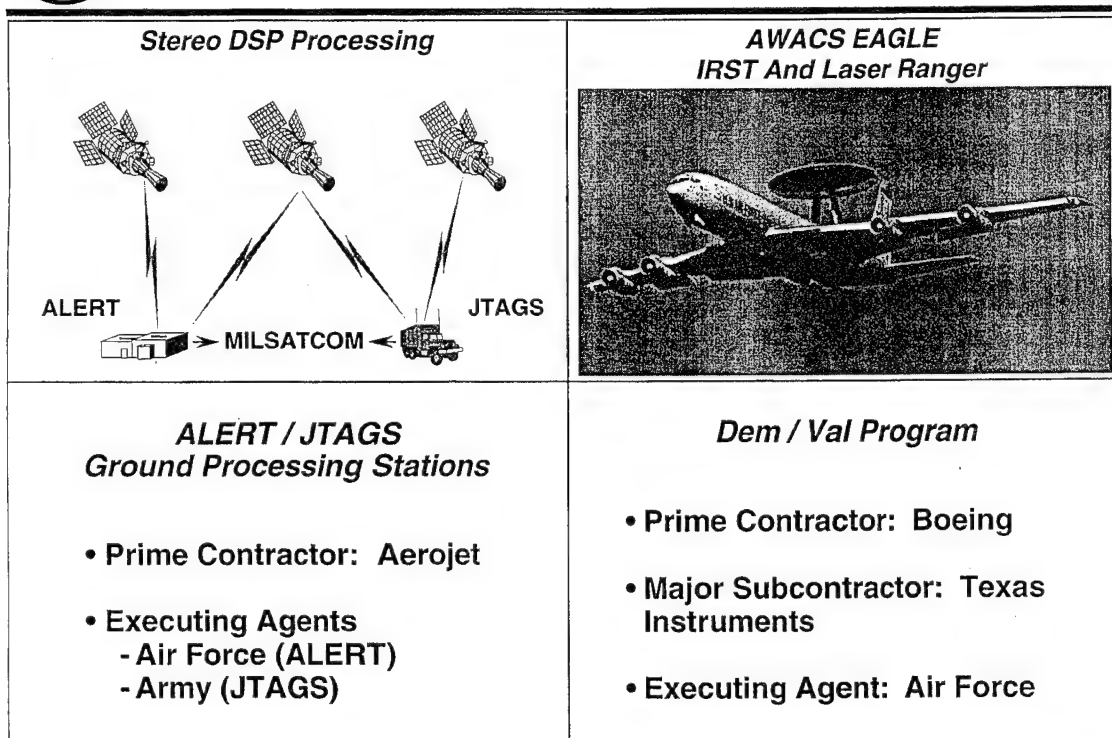
mj-49775D / 112195

COMMUNICATIONS INTEROPERABILITY
JOINT DATA NETWORK: TADIL-J

• Based On JTIDS / TADIL-J (Link 16)
• Supports ASD C^{3}I Tactical Data Link Policy
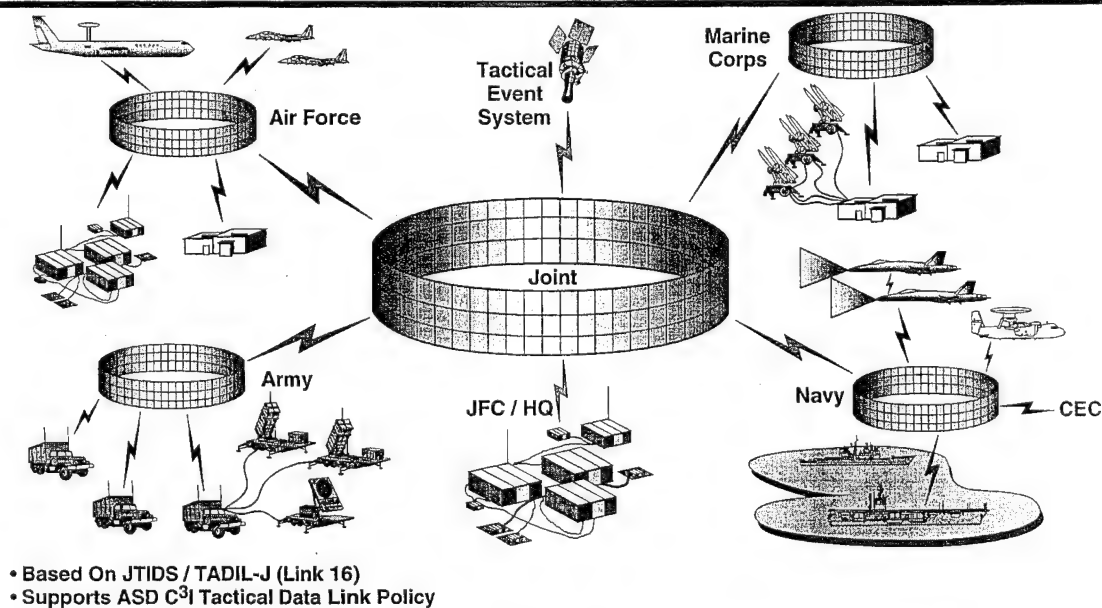
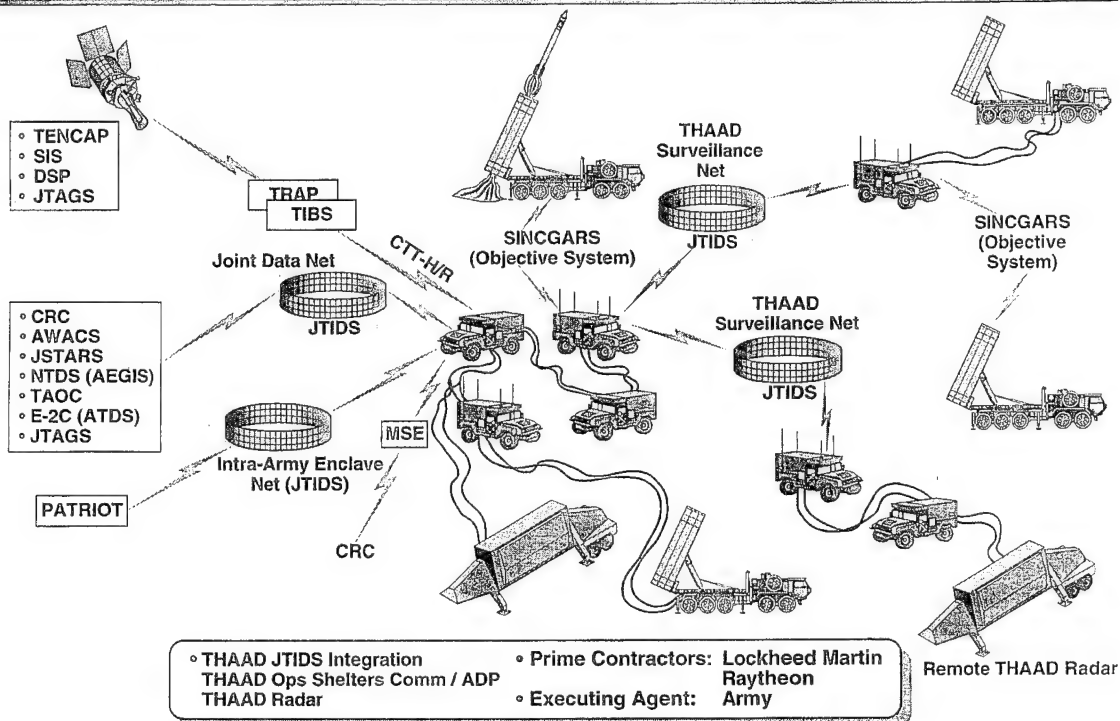| *JTIDS Radios*	*Host Platform Integration*
• Prime Contractors: GEC Marconi, Rockwell Collins	• Prime Contractors: Many
• Executing Agent: Air Force	• Executing Agents: Services

mj-31034N / 112795

206
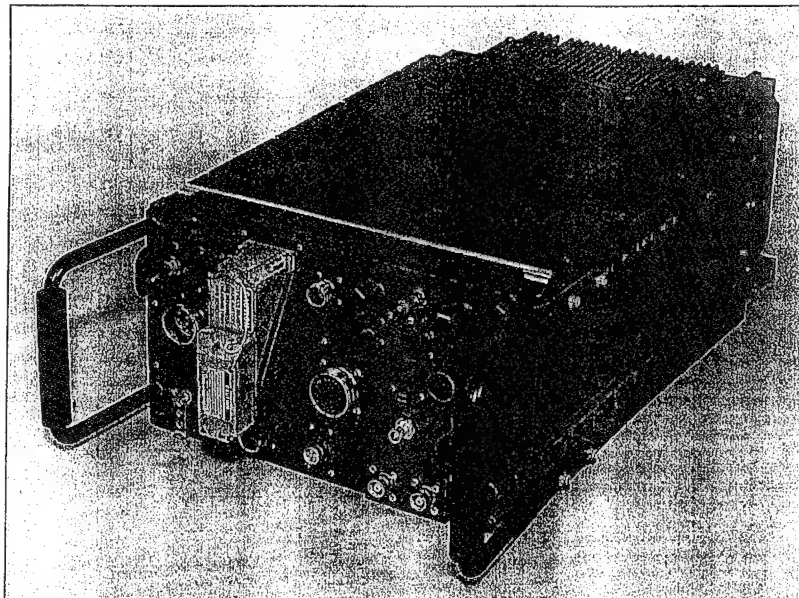
- ° FY 96 BMDO Plan: 35 Units
- ° Customer: Army PATRIOT And THAAD Programs
- ° Executing Agent: Air Force
- ° Prime Contractor: GEC Marconi
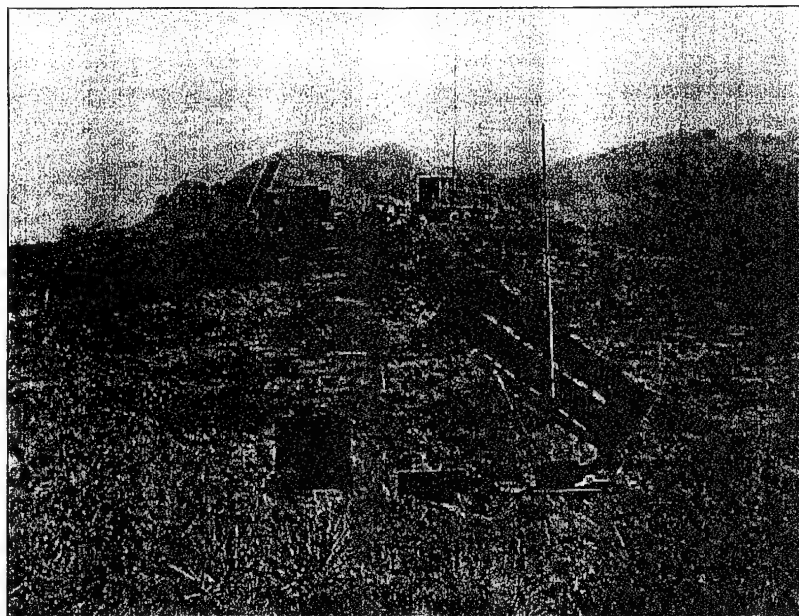- ° Subcontractor: Rockwell Collins

mj-57956B / 112795

THAAD BM/C^3 ARCHITECTURE

- ° TENCAP
- ° SIS
- ° DSP
- ° JTAGS

TRAP
TIBS

Joint Data Net
JTIDS

CTT-H/R

SINCGARS
(Objective System)

THAAD
Surveillance
Net

JTIDS

SINCGARS
(Objective
System)

- ° CRC
- ° AWACS
- ° JSTARS
- ° NTDS (AEGIS)
- ° TAOC
- ° E-2C (ATDS)
- ° JTAGS

THAAD
Surveillance Net

JTIDS

Intra-Army Enclave
Net (JTIDS)

MSE

PATRIOT

CRC

Remote THAAD Radar

- ° THAAD JTIDS Integration
  THAAD Ops Shelters Comm / ADP
  THAAD Radar
- ° Prime Contractors: Lockheed Martin
  Raytheon
- ° Executing Agent: Army

mj-52520C / 112795

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PATRIOT

- JTIDS Integration
- Prime Contractor: Raytheon
- Executing Agent: Army

mj-38007F / 112195
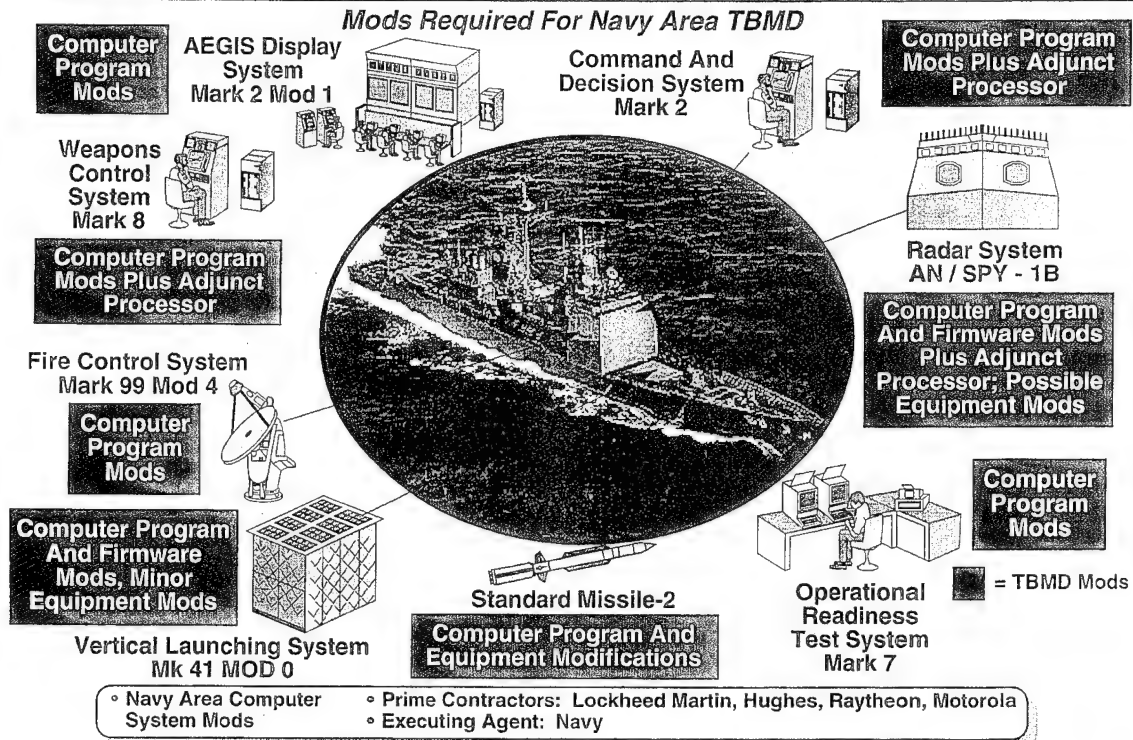
AEGIS TMD BM/C^3 ARCHITECTURE

- TENCAP
- SIS
- DSP
- JTAGS

TRAP
TIBS

Data Net
JTIDS

- CRC
- AWACS
- JSTARS
- TAOC
- JTAGS

THAAD

PATRIOT

Intra-Army
Enclave
Net (JTIDS)

AEGIS CG / DDG

JTIDS

E-3A

CEC

E-2C

F-14

CV / CVN

F/A-18

LHA / LHD

SSN
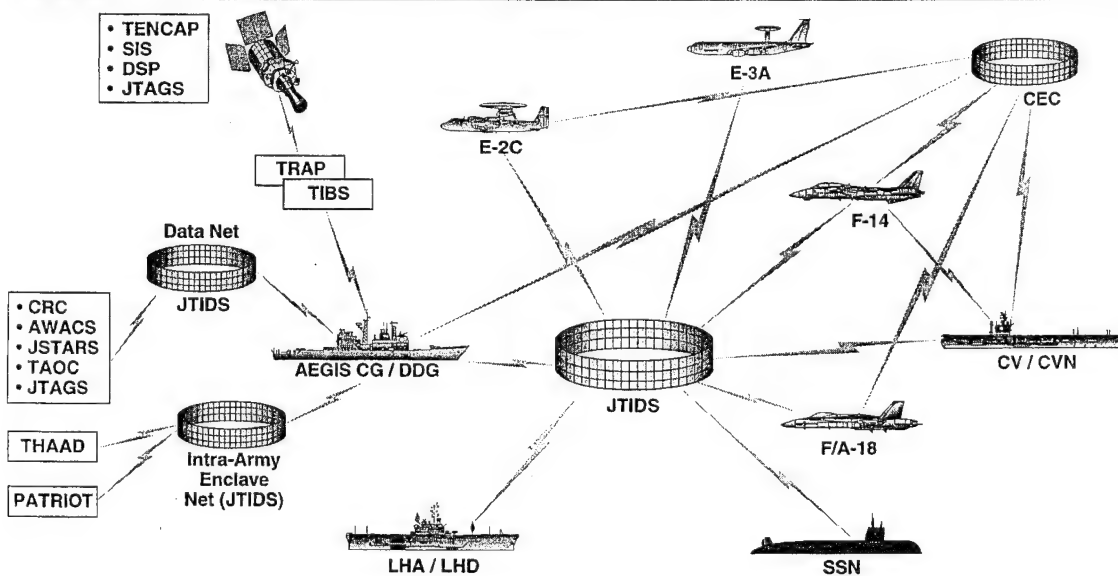
- JTIDS Integration: Platforms - AEGIS CG / DDG, Carriers, F/A-18, F-14, E-2C, Submarines, Large Deck Amphibious Ships
- Prime Contractors: Many
- Executing Agent: Navy

mj-58703 / 112795

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AEGIS WEAPON SYSTEM MARK 7

Mods Required For Navy Area TBMD

Computer Program Mods

AEGIS Display System Mark 2 Mod 1

Command And Decision System Mark 2

Computer Program Mods Plus Adjunct Processor

Weapons Control System Mark 8

Computer Program Mods Plus Adjunct Processor

Radar System AN / SPY - 1B

Computer Program And Firmware Mods Plus Adjunct Processor; Possible Equipment Mods

Fire Control System Mark 99 Mod 4

Computer Program Mods

Computer Program And Firmware Mods, Minor Equipment Mods

Computer Program Mods

Vertical Launching System Mk 41 MOD 0

Standard Missile-2

Computer Program And Equipment Modifications

Operational Readiness Test System Mark 7

■ = TBMD Mods

- Navy Area Computer System Mods
- Prime Contractors: Lockheed Martin, Hughes, Raytheon, Motorola
- Executing Agent: Navy

mj-41782E / 112195

TPS-59 AND USMC HAWK
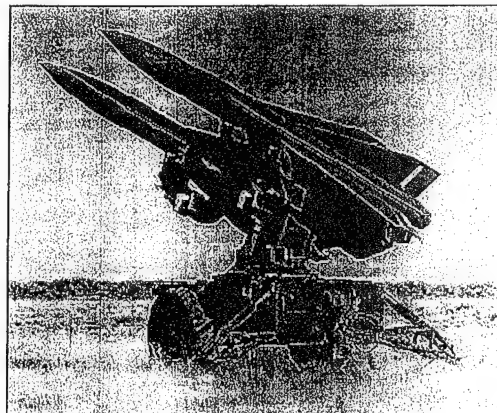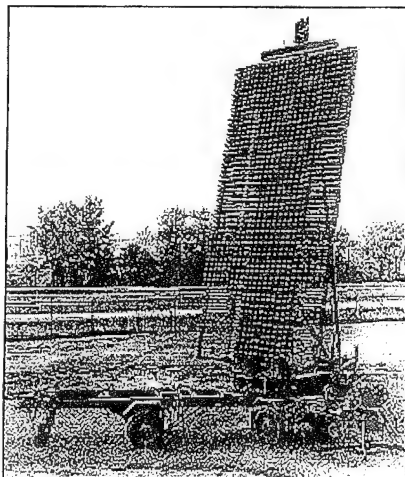
- HAWK Upgrade To Battery Command Post To Process TPS-59 Cueing Data
- Prime Contractor: Lockheed Martin
- Executing Agent: U.S. Marine Corps

mj-31871H / 112195

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NATIONAL MISSILE DEFENSE PROGRAM

NMD Technology Readiness Program

Early Capability → Objective Capability

No Deployment Authorized

NMD Elements
- Interceptor
- Radar
- BM/C^3
- Over The Horizon Sensor(s)

Components

Goals

- **Incrementally Increase Technological Capability**
- **Plan To Reduce Time To Build And Deploy A System**
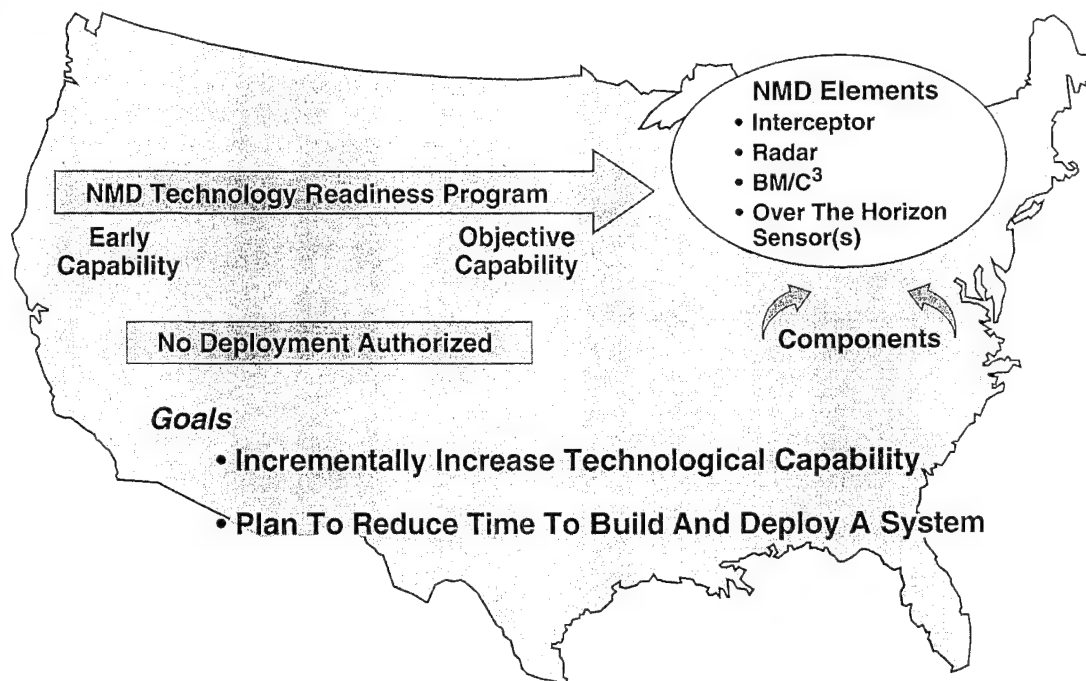
mj-42713H / 032595

NMD BATTLE MANAGEMENT / COMMAND, CONTROL, COMMUNICATIONS (BM/C^3)

MILSATCOM

SBIRS (DSP)

SMTS

EWR

CINC

CMC

BM/C^3
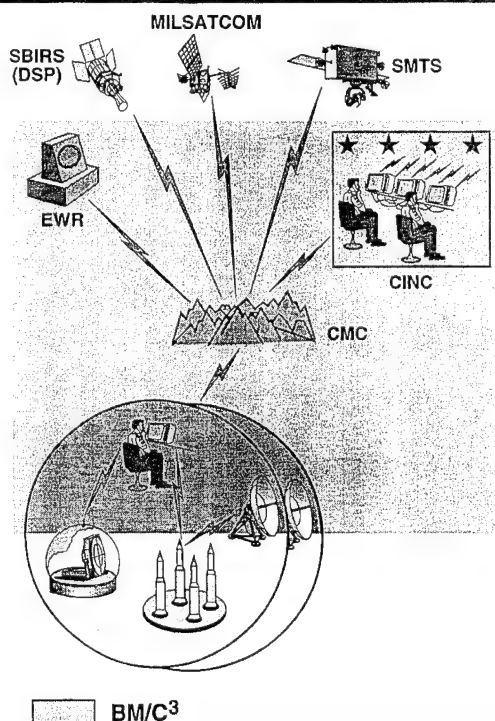
Includes

- **Upgraded Early Warning Radars**

- **Missile Defense C^3 At Cheyenne Mountain Complex**

- **C^3 At Missile And Radar Site(s)**

- **Integration Of Early Warning Data**

- **Prime Contractor**
  - TRW (Part Of SE&I Contract)

- **Executing Agents**
  - Air Force (EWR, Overall C^2)
  - Army (Radar And Firing Point C^3)

mj-46248N / 112795

STRUCTURE OF BMDO'S NMD / TMD
BM/C³ / SE&I CONTRACT

NMD SE&I

Task: Provide NMD Systems Engineering, Test Requirements Planning, Interface And Configuration Management, Maturity Tracking And Deployment Readiness Support To BMDO

NMD BM/C³

BM/C³

Task: Produce Information Architecture And NMD BM/C³ Prototypes To Support NMD Integrated Tests And Users CONOPS

TMD C³I

Joint Near Real-time Data Network (TADIL-J)

Task: Produce TMD Information Architecture And A TMD Integration And Interoperability Road Map

- ○ **Prime Contractor**
  - - TRW (Level Of Effort)

- ○ **Subcontractors**
  - - Hughes
  - - McDonnell Douglas

- ○ **Executing Agents**
  - - BMDO
  - - Air Force
  - - Army

mj-56655C / 112795

NATIONAL TEST BED
COMMUNICATIONS ARCHITECTURE

Alaska Regional Supercomputing Center (ARSC)

Legend
- ——————— T1 (1.544 Mbps) Line
- — — — Dial Up T-1 Line
- --------- 56 kbps Line

NTB Required For Efficient Simulation / Modeling Of TMD / NMD Systems
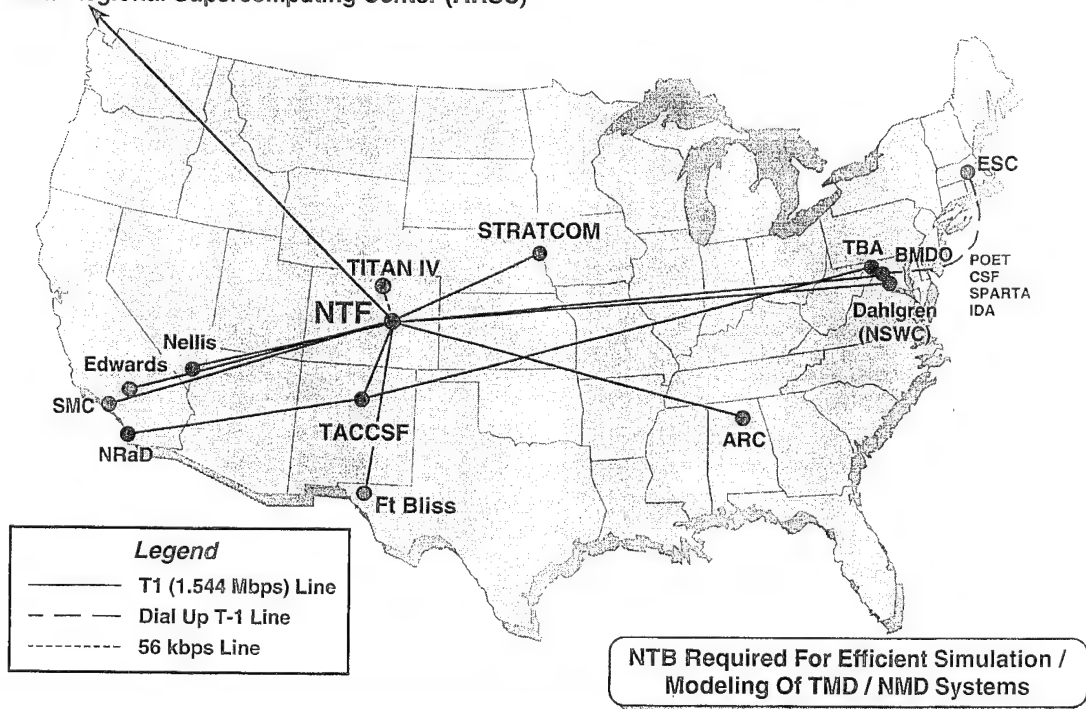
mj-58550 / 112795

POSITION BMD TO SEIZE TECHNOLOGY OPPORTUNITIES

*No ! I Can't Be Bothered To See Any Crazy
Salesman, We've Got A Battle To Fight !*

"Modernization... Is What Is Meant By Long-term Readiness."
Secretary Of The Army Togo West, February 28, 1995

mj-51553 / 053095

TECHNOLOGY PROGRAM

Component	Advanced Concepts

• Sensors
  - Dim Objects, Low Noise
  - Low Vibration, 10 Year Life
  - Radiation Tolerant
  - Better Tracking Accuracy
  - Resist Countermeasures
  - Solid-state Radar Modules
 	
• Interceptors
  - Longer Range
  - Small, Cold Targets
  - Lightweight
 	
• Phenomenology
  - Discriminate Targets From
    Other Objects
	• Directed Energy Boost Phase Intercept
	  - High Payoff Leap Ahead
	    Technology vs Evolved Threat
	
	• Airborne Kinetic Energy Boost Phase
	  Interceptor
	  - Defend Against
	    Countermeasures
	  - Avoid Collateral Damage
	
	• Innovative Science & Technology And
	  SBIR
	  - Accelerates Application Of
	    Breakthrough Science

Support To Program ⟱

Create New Options ⟱

| • PATRIOT • THAAD • GBR
• AEGIS • BE • GBI | Future
TMD And NMD |

mj-41888E / 022495

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INNOVATIVE SCIENCE AND TECHNOLOGY PROGRAMS

Sensors
° Missile Signatures
° Infrared Focal Plane Arrays
° Ultraviolet Sensors
° Laser Radar And Autodyne Doppler

C^4
° Distributed Simulation
° Laser Satellite Communications
° Terahertz And Millimeter Wave Sources
° Secure Computer Networking
° Mathematical Methods And Algorithms
° Multisensor Tracking And Communications
° Optical Computing And Communications

Propulsion
° Electrical Propulsion
° Advanced Propellants

Interceptors
° Interceptor Propulsion
° Miniature Interceptor Components

Power
° High-power Electronics
° Energy Conversion Technology

Materials	
° Electronic And Optical Materials	° Superconducting Materials
° Materials Plasma Processing	° Wideband Gap Semiconductor
° Molecular Electronics	° Propulsion Materials
° Space Environmental Effects	

mj-53218A / 112195

LASER COMMUNICATIONS: GREAT PROMISE FOR HIGH ALTITUDE LOW PROBABILITY OF INTERCEPT
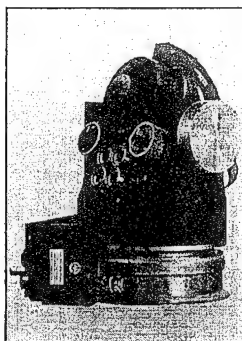
1995
Engineering
Development

° 1 GBps

° < 1 / 6 Power Of Comparable RF Space System

° < 1 / 2 Weight Of Comparable RF Space System

° Cooperative Project With DARO

mj-58511 / 112795

SUMMARY

- Program Designed To Address Post Cold War Environment And Affordability Issues

- Priority On Protection Of Regionally Deployed Forces

- Programs Include New / Upgraded Weapon Systems, Upgraded C^2 Systems, Sensors, And Communications

- Programs Involve Research, Advanced Technology, Dem / Val, EMD And Production

- System Prime Contractors Include Aerojet, Boeing, TRW, Raytheon, Lockheed Martin, Hughes, GEC Marconi, And Rockwell Collins

mj-58381 / 112795

BASE OPERATIONS
(BASOPS)

MG FRANK L. MILLER, JR.
Assistant Chief of Staff for Installation Management

29 November 1995
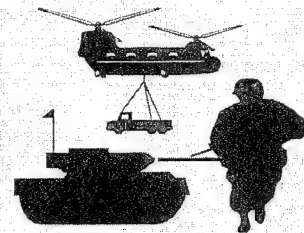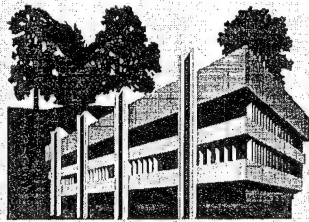
STRATEGIC GOAL

To exceed our customers
expectations in each area
and function for which the
ACSIM is responsible

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CHANGING INSTALLATION ENVIRONMENT

INDUSTRIAL AGE

- Forward presence
- Large overseas presence
- Army Focus

- Direct Links (stovepipes)
- Simple comm grids over limited geography
- Three distinct foci -- sustaining base; strategic; tactical
- Military led evolution
- Simple user instruments
- Mainframe - batch processes

INFORMATION AGE

- Forward deployed
- Split-based operations
- Increased focus on joint interoperability
- Internet/ABCS/AGCCS
- Worldwide Web/GCCS

- One Single focus -- sustaining base to foxhole
- Commercial led revolution
- Complex user instruments
- PC based - enhanced individual performance

PROCESSES MUST CHANGE WITH AUTOMATION

BASOPS IS A KEY ELEMENT OF READINESS
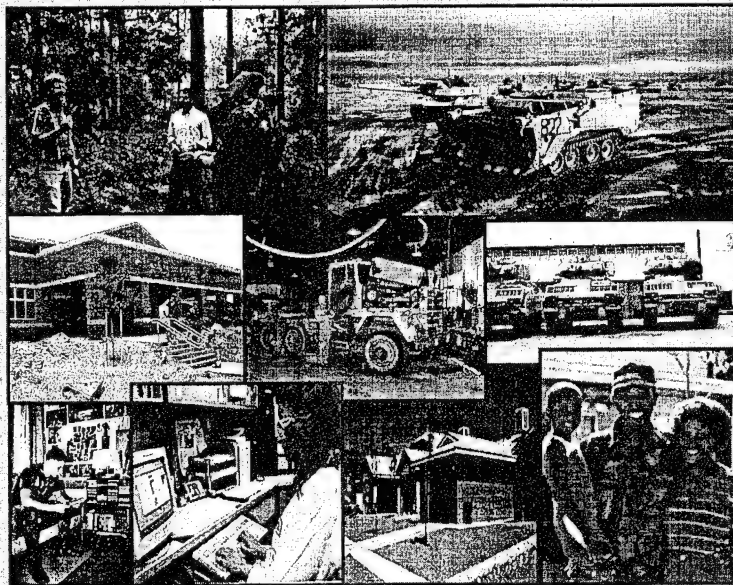
BASOPS MAKES SOLDIERS STAY IN THE ARMY....WE ENLIST SOLDIERS BUT REENLIST FAMILIES

INSTALLATIONS ARE BIG BUSINESS

Defense Environmental
Restoration Account

BRAC (DERA)
$493M $673M

FAMILY
HOUSING
$1.2B

Military
Construction
(MCA)
$560M

BASOPS
(OMA)
$5B

$1B
Nonappropriated
Funds (NAF)
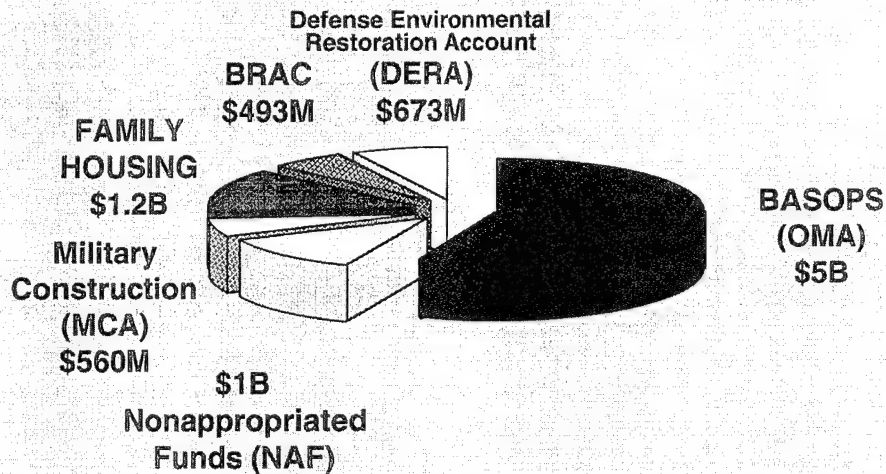
FOR FY95 ACSIM MANAGED DEFENSE AND ARMY RESOURCES IN EXCESS OF $8 BILLION.

TYPICAL GARRISON STAFF

Garrison Commander

Information Management (DOIM)

Contracting (DOC)

Safety

Logistics (DOL)

EEO

Counter-Intelligence and Security (DCINT/SEC)

Provost Marshal (PM)

Plans, Trng and Mobilization (DPTM)

HQ CMD

Resource Management (DRM)

Personnel and Community Activities (DPCA)

Public Works (DPW)
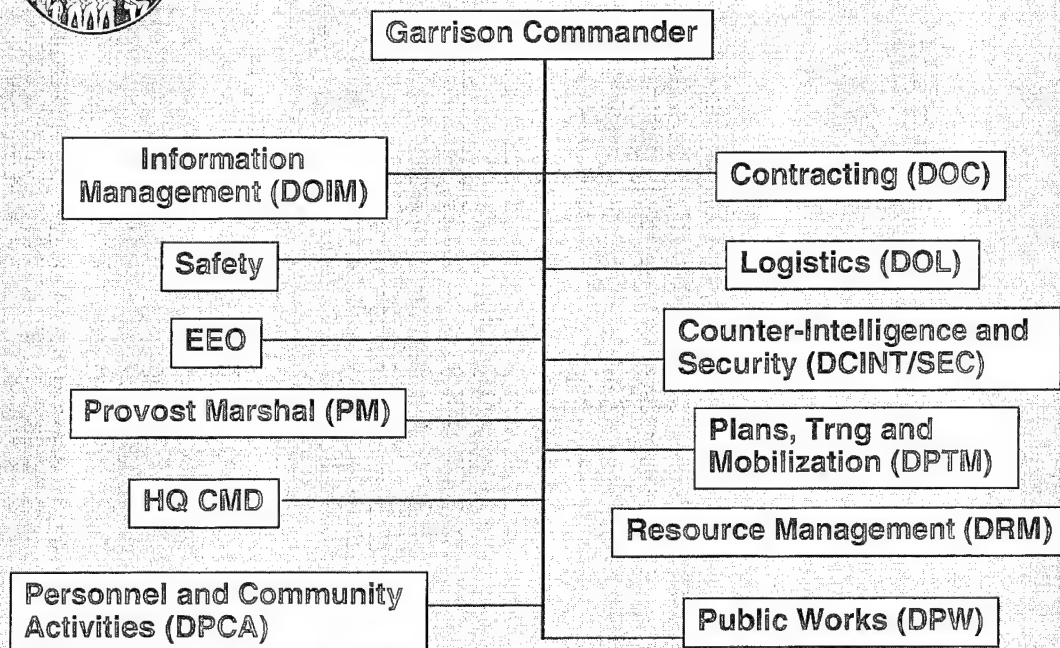
COORDINATED VERSUS DIRECTIVE STAFF

WHAT INDUSTRY CAN DO FOR US

Improve performance (state-of-the-art management), leverage new technology, better business practices and eliminate "MILSPECS"
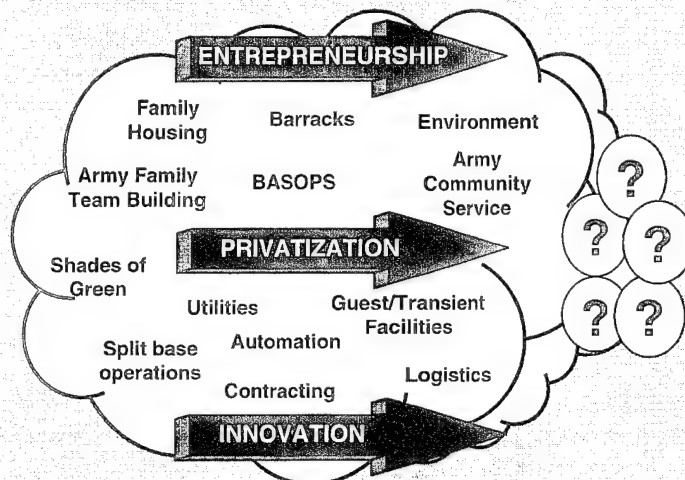
DESIRE OUTCOME:
- Manage better
- Measure how we are doing
- Make our job quicker, better, faster
- Better cost benefit analysis
- Real time data to make smart business decisions

Issues: Cost, quality, speed, interface, flexibility, malleability

Partnership between industry and DoD

BASOPS TODAY

HQDA
↓
MACOM
↓
Installation
↓
Customer

NOT TRUE

~~HQDA~~ — HQDA
↓
MACOM ~~MACOM~~
↓
Installation Installation
↓
Customer Customer

HQDA
↓
MACOM
↓
~~Installation~~
↓
Customer

One Size Fits All

NEED TO BE MORE RESPONSIVE TO CUSTOMERS

FUTURE OF BASOPS

- Privatize where we can
- Save money
- Increase productivity
- Cut overhead
- Set and enforce priorities
- For every dollar spent get a dollar's worth of benefit
- Exceed customer expectations

SUSTAINING BASE TO FOXHOLE

Readiness

Other Installations

Army Installation

Mobilization

Warfighting

Training Support
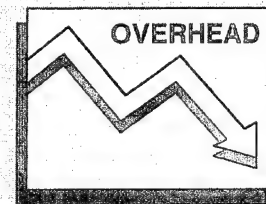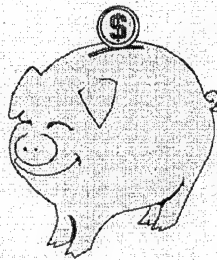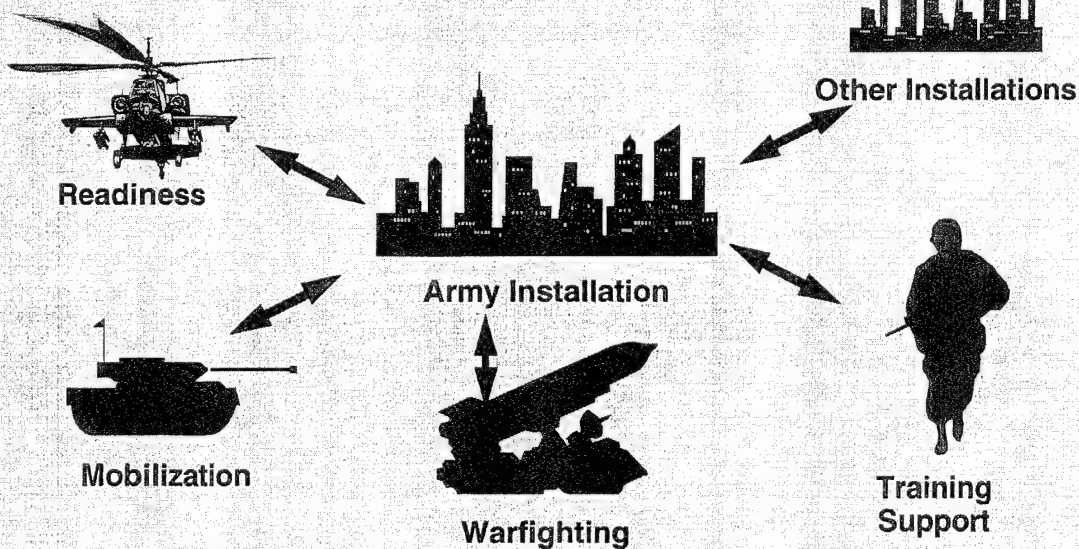
Whether fighting wars or paying TDY we need to leverage information technology to improve every aspect of what we do

KEYS TO SUCCESS FOR THE 21ST CENTURY
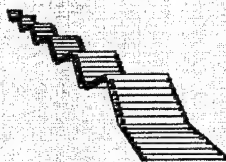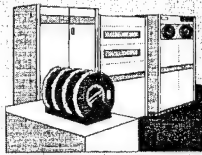
- Know your information requirements
- Use off-the-shelf products
- Minimize writing codes
- Maximize use of Internet to share information
- Take portable PC's from the soldiers desk to the field
- Develop partnerships with major software developers

The way it was

The way it should be

GOAL: SEAMLESS AUTOMATION - TACTICAL...NON TACTICAL

WHAT INDUSTRY CAN DO FOR US

Improve performance (state-of-the-art management), leverage new technology, better business practices and eliminate "MILSPECS"

DESIRED OUTCOME:
- Manage better
- Measure how we are doing
- Make our jobs quicker, better, faster
- Better cost benefit analysis
- Real time data to make smart business decisions

Issues:
Cost, quality, speed, interface, flexibility, malleability

Partnership between Industry and DoD

BASOPS FUTURE

ENTREPRENEURSHIP

Family Housing
Barracks
Environment
Army Family Team Building
BASOPS
Army Community Service

PRIVATIZATION

Shades of Green
Utilities
Guest/Transient Facilities
Split base operations
Automation
Logistics
Contracting

INNOVATION

- Use better business practices
- Maximize use of privatization
- Get more value out of traditional dollars
- Exceed customers' expectations

GOAL: ENHANCED READINESS

PRESENTATION OUTLINE

FORUM: Advanced Planning Briefing to Industry (AFBI)
SPONSOR: ODISC4, HQDA
THEME: C4, The Future: One Vision, One Architecture, One Voice
TOPIC: Medical Information and Technical Requirements
DATE: 29 November 1995
PLACE: Ritz Carlton, Tysons Corner, Virginia
AUDIENCE: 500 participants, representing 300 Companies
PRESENTER: MAJ Clyburn, U.S. Army AMEDD Center & School Liaison to the
U.S. Army Medical Research and Materiel Command

Introduction: Slide # 1- Commander's Vision

- First off, on behalf of BG Zajtchuk, Cdr, U.S. Army Medical Research and Materiel Command, I want to thank LTG Guenther for the opportunity to present to you the Army Medical Department's vision of a digitized medical battlespace: a medical battlespace that is consistent with the DISC4 vision of a common technical architecture, that leverages high technology insertions developed by ARPA, and that supports that Army Digitization's Office strategic thrusts for Force XXI.

- In support of this medical vision, I am happy to report that we have been recently awarded HQDA approval of the Mission Needs Statement for Medical Communications for Combat Casualty Care (MC4), the formal articulation of the Army Medical Departments effort to integrate telemedicine into the Army force structure. I am also pleased to report that MC4 has been designated a critical system in the recently concluded TRADOC, War Fighting Lens Analysis.

- These two actions, formally validate the potential value of telemedicine on the battlefield for the upcoming POM budget allocation process. They also open enhanced opportunities for the Army Medical Department to further develop its already close working relationship with PEO, STAMIS and DISC4 to devise the appropriate technical architecture, programmatic framework and funding to develop the 21st Century infrastructure necessary to deliver the finest available medical care irrespective of time, distance or the remoteness of a deployed American soldier.

- Today's briefing will accomplish three objectives:

* One, it will describe the Army Medical Department's rationale for adopting these technologies.
* Two, it will describe the 6 thrust areas that compose MC4
* Three, it review some of the challenges we anticipate ahead.

- Phone number, contact information: _____

Slide # 2: Military Telemedicine

- In recent years, professionals in military medicine have done a careful analysis of WWII, the Korean War and Vietnam to determine where deaths occur on the battlefield.

* Most battlefield deaths occur quickly

- 67% of KIAs died within 10 minutes of wounding

- Of the remaining 33%, most died within an hour
                            * Of these deaths, 50% were due to exsangination(bleeding)
                                    - 20% could have been prevented by prompt first
                                    aid
                                    - Another 10% were the result of tension
                                    pneumothorax, another treatable condition
                            * Based on this analysis, about 30% of KIAs can be saved
                    * This leads to the conclusion that more timely delivery of effective care is
                    literally a life saver.
        - The next step of the analytical case for these technologies was to identify the
obstacles to the timely delivery of effective care. Some of the most important obstacles
identified were:
                    * An inability to quickly locate the casualty
                    * An unawareness that a casualty had occurred
                    * Required treatments that exceeded the skill level of a frontline medic
                    * And, inadequate diagnostic & resuscitative capabilities far forward
        - So, what are some of the potential solutions to these obstacles:
                    * A family of enabling technologies we call telemedicine
                            - We envision that they will re-engineer the way we deliver care
                                    * By providing medical situational awareness
                                            - we will know when a casualty occurs
                                            - we will know the location of casualties
                                    * We will transmit case specific exert medical knowledge far
                                    forward to the combat medic
                                    * We will push, using information technologies,
                                    telecommunications and advanced diagnostic technologies,
                                    the ability to diagnose and resuscitate casualties further
                                    forward on the battlefield

Slide #3: The Basis for our Strategy
        - As we move from a hierarchical approach to health care delivery to an
information age ad hocracy approach telemedicine technologies enable time & distance
independent opportunities for sharing critical medically relevant information. Such as:
                    * Where is the casualty?
                    * How badly is he wounded?
                    * How badly is he wounded in comparison to others?
                    * What evacuation assets are available?
                    * What medical assets are available?
                    * How can his wound be most effectively treated? (Etc)

Slide #4: Operation Primetime
        - Here is a real world example of the principle at work.
                    * Since 1994 there has been a telemedicine network in place to support
                    troops deployed in Croatia and Macedonia.

- Rather than follow the traditional hierarchical model it follows the ad hocracy model
   * Even far forward Aid Stations have access to specialty consultation from the military's foremost expert clinicians at Walter Reed Army Medical Center, Bethesda Navy Medical Center, Landstuhl in Germany or a deployed ATH in Zagreb.
      - This has resulted in over 175 digital radiology image consultations in an average week.
      - And, in one case the dramatic mentored treatment of a soldier suffering from severe pulmonary distress.

Slide #5: Worldwide Deployments

- In the past 24 months you can see the these technologies have received widespread use in numerous deployments.

Slide #6: Advanced Technology Program

- The Army MC4 program is embodied in the six thrusts shown:
   * Far Forward Appliques:
      - Hands Free Radio/Cam for telementoring and decision support
      - Sincgars enabled still and video image transmission
      - Medics Smart Pack-GPS enhanced, stylus based computer
      - Meditag/MARC casualty med record information availability
      - will include in future; Personnel Status Monitor   -
   * Digital Field Medical Treatment Facility Appliques:
      - Intra-hospital medical image and data networking
      - Remote Specialty Consultation
      - Wireless communication
   * M3V
      - Mobile C2 medical situational awareness
      - On site live video, hi resolution still diagnostic transmit capability
   * Expert Host Medical Center Appliques
      - Allows in CONUS expertise to be projected into Area of Op
      - Interfaces with civilian medical centers
      - Digital archives access to all patient medical info
   * Advanced Research projects Agency Insertions
      - Include:
         * Personnel Status Monitor
         * Advanced-Miniature-Noninvasive Diagnostic Sensors
         * LSTAT- Mobile, Mini-ICU
         * Telepresence Surgery
         * Trauma Care Information Management System

* Human Physiology Simulations
* Telecommunications, Integration, Sustainment
- Operational costs
- R&D
* compression studies
- Infrastructure

Slide # 7: Taxonomy

- This graphically represents the capabilities tied together into an integrated system
* It is important to view as a system
- If one link is missing the system doesn't deliver the capability.

Slide #8: Medical Mentoring

- Now, for a closer examination of each of the elements
* Far forward telementoring can involve a number of possible combinations
* Involving a number of modalities

Slide #9: Desert Hammer

- Results from the first Battle Lab Advanced Warfighting Experiment examining these technologies was positive

Slide #10: Developmental Overview

- The M3V is based on the Army MITT in a HMMWV chassis
- Based on COTS hardware and software

Slide #11: Medical Command and Control

- Developmental Criteria
* Must be consistent with Army Architecture
* Must be able to go Joint
- Still a dynamic requirement as it relates both to overall Army and Joint

Slide #12: Medical Situational Awareness

- The key questions we are attempting to answer.

Slide #13: Evacuation Assistance

- Also, we want a system that can also maintain real time visibility of dynamic air and ground evacuation missions

Slide #14: Real Time Tele-imaging

- Integrated, multimedia workstations will be a key component of the digitized Medical Treatment Facility.
* As you can see this workstation includes
- video and audio
- hi resolution still imaging
- graphics
- data

Slide #15: Digital Deployable MTF Clinically Driven Focus

- The Digital MTF will support a wide variety of medical interventions due to its connectivity with the CONUS based Expert Tertiary Care Medical Center

Slide #16: Deployable Digital MTF

- Four enabling technology support the MTFs ability to provide highly expert care in the theater of operations
* Wireless
- internal commo
- MDA support
* DINS
- teleradiology
* Distributed video
- remote consultation
* HIS
- computerized patient records

Slide #17: ARPA Military Medicine's Vision of the Future

- ARPA will bring to bear a new level of diagnostics, resuscitation and medical informatics to the battlefield
* PSM
* TCIM
* LSTAT
* Telepresence surgery
- They build on the MC4 infrastructure to directly address the KIA issues highlighted at the beginning of the brief
* Can't locate the casualty - GPS
* Don't know a casualty occurred - Vital Signs monitor
* Lack of required skill - Telementoring/Telepresence Surgery
* Lack of diagnostic/resuscitative capabilities far forward - LSTAT

Slide # 18: The TMED Program (Telecom Stairway)

- As you can see the more robust Telemedicine applications require robust bandwidth throughput.
* It is our strategic plan to work closely with DISC4 and PEO, STAMIS to develop a plan to climb this stairway to the higher levels of telemedicine capability.

Slide # 19: R&D - A Comparison of Approaches

- Information technology integration is posing the whole Army with a different set of programmatic challenges than we have faced with conventional developmental requirements.
* Because of the rapid rate of advancing cost-performance ratios of information and telecommunications technologies, it has been difficult to follow the conventional milestones we are familiar with in traditional R&D.
- The AMEDD has adopted a rapid prototyping, concurrent engineering approach to telemedicine development.
* This has been successful in allowing us to rapidly support real world operations, AWEs and TDA requirements at an accelerated rate.
- But, it has also left us with a lot of homework to do in terms of developing and articulating credible analytical underpinnings to support return on investment in these technologies.
- As a result, this is where much of our attention is currently ` focused, on the evaluation, analysis and programmatics of MC4.
- Over the next few months, we will be working closely with DISC4, PEO, STAMIS and DISA to solidify the business case for these technologies.

Slide # 20: Early Telemedicine R&D

- We are at the point now where we know we can use information technology and telecommunications to transport patient information and expert medical knowledge into situations that were impossible in the not too distant pass. Hopefully that will keep us from catapulting too many individuals unnecessarily.

Summary: Slide #21: Secretary Perry Quote

- We intend to implement Secretary Perry's guidance. To provide the best medical care, anytime, anywhere that science and technology can offer.

The Command's Vision

- Provide world class research and materiel for total quality health care in support of America's warfighter at home and abroad, accessible to the total defense family, accountable to the American people ...
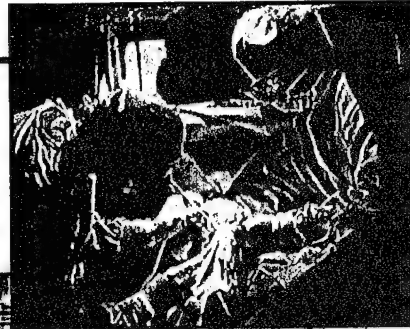
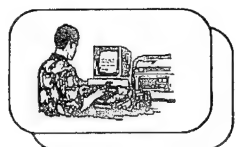## Military Telemedicine & Medical Advanced Technology
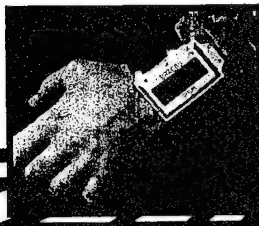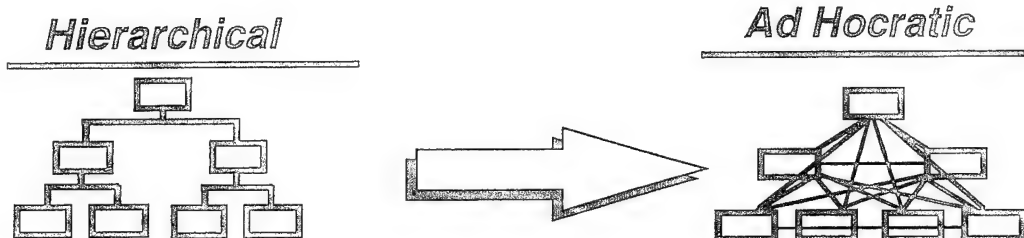
Haiti; 1995

Personal Status Monitor
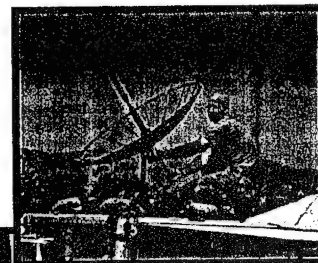
T-Med is a process re-engineering enabler for military medicine

Military Telemedicine

The basis for our strategy . . .

● *Information in Organizations has evolved . . .*

Hierarchical → **Ad Hocratic**

● *In Ad Hocracies...*
Service organizations-such as health care--
are enabled ...with time- and distance- independent opportunities
for sharing information --in this case for patient care

Operation Primetime . . .

Walter Reed   Landstuhl Germany

MATMO

Fleet Hosp 6,
Zagreb, Croatia

Real-time video, voice, still
imagery, and data over
satellite
for medical support

Macedonian
Outposts

Bethesda
and
San Diego

Skopje, Macedonia

Army Aid Stations   Feb 94 to date
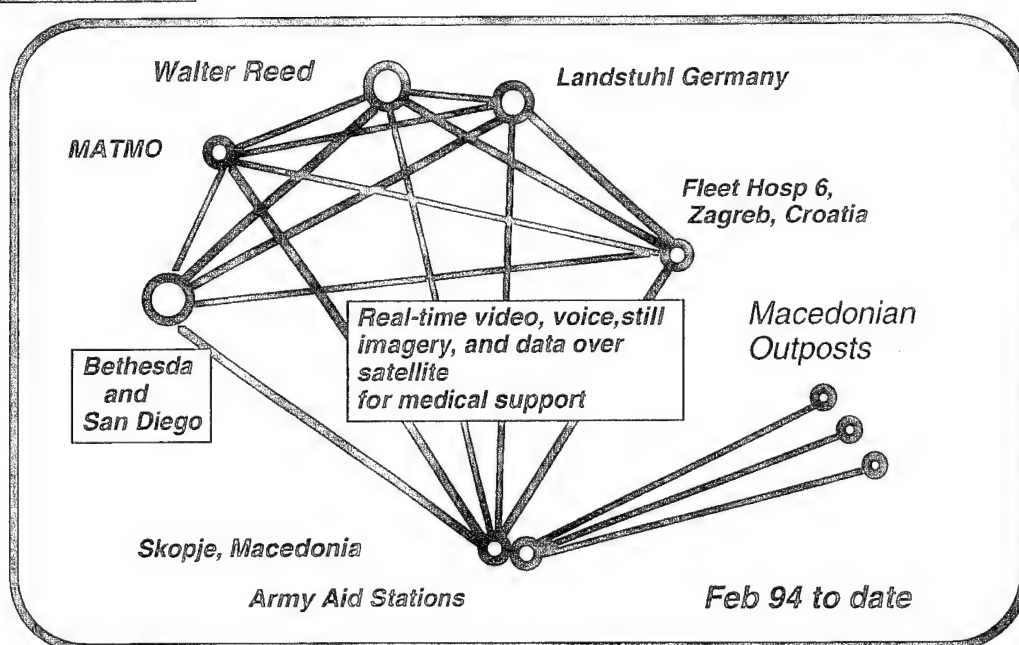
◯ **Worldwide Telemedicine Rapid Deployments in the past 24 Months . . .**

Germany

Macedonia & Croatia

Kuwait

Ivory Coast

Somalia

Cuba   Haiti

Korea

Panama

Kwajalein
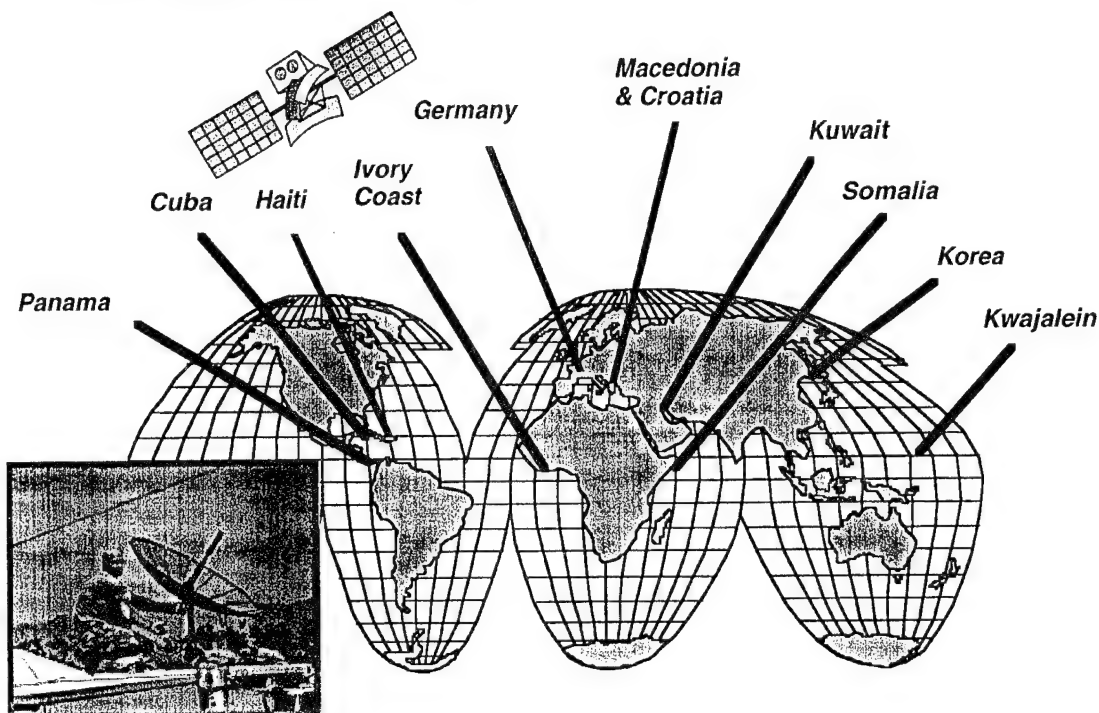
Advanced Technology Program

Six Program Thrust Areas . . .

- ■ Far-Forward T-Med Appliques

- ■ Digital Field Hospital Appliques

- ■ Mobile Medical Mentoring (M3) Vehicles

- ■ Expert Host Medical Center Appliques

- ■ Advanced Research Projects Agency Insertions

- ■ Telecom, Integration, Sustainment
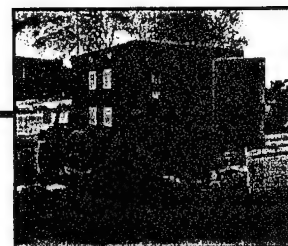
T-Med M3 Concept Vehicle at Fort Sam Houston, Oct 94

   ↳ **consistent with Force XXI and Army's Digitization Strategy**

   ↳ **totally integrated • foxhole to specialty care**

   ↳ **open systems • scaleable • interoperable • upgradeable**

Teleradiology Gateway

Telemedicine Program Taxonomy

T-Med 2
Mobile Medical Mentoring Vehicle

...Dockable to any deployed units

... also independent operations

e.g.. disaster support

"A chain is only as strong as it's weakest link."

T-Med 3
Digital Field Hospital Appliques

T-Med 1
Far-Forward Appliques

Telemedics   Physician Aid Stn

up to 50Km

T-Med 5
ARPA Technology Insertions into the above

T-Med 4
Expert Host Med Center Appliques

T-Med 6
Telecommunications Sustainment for the above

T-MED

- Medical Mentoring
  - Physician Assistant to Combat Medic
  - Physician to Physician Assistant
  - Physician to Physician
- Medical Consultation
  - Still Imagery
  - Motion
  - Specialist to Physician
- Digital Moulage
  - Still Images
  - Real Time Video
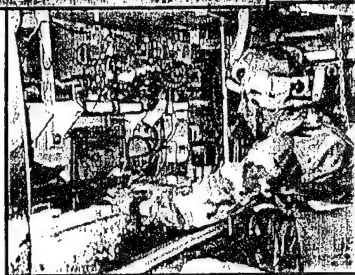
Desert Hammer . . .

Major Findings . . .

○ Sincgars able to support
Medical Imagery

○ Medical Situational Awareness-
Great Value

○ Digital Moulage--
Training Enhancer

○ Far-Forwrd Casualty Mgmt--
greatly enhanced with Imagery

Time to treatment reduced 28%
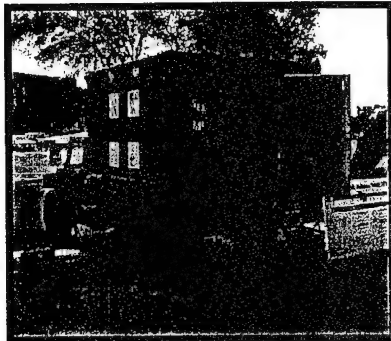
**T-Med M3 Concept
Vehicle at
Fort Sam Houston
4 Oct 94**

○ "Hardware Downscaling"
from MITT

○ Commercial Medical
Software Package

Developmental Overview . . .

○ 2 Basic Scenarios:

○ Dockable host

○ Forward deployed
EMS T-Med
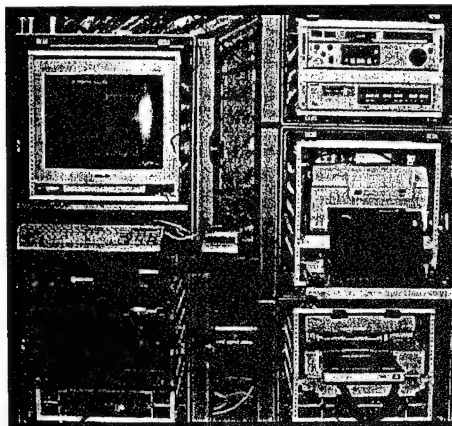
Medical Command & Control

Battlefield Situational Awareness

▢ Any Medical C2 must be closely coupled to the Army's C2 system (Maneuver Control System (MCS))

▢ It must have high-level interface ("hooks") into Joint systems that impact patient flow (regulating), logistics and Joint mission planning and execution

▢ Could be separate systems - pro & cons

▢ Army's Phoenix system is current redesign effort for Army C2 (MCS and Decision Support)

Medical Situational Awareness

Where on the Battlefield are your patients and medical assets?
Do you know their status and condition?
Are you able to leverage your assets to the greatest advantage?

- Wounded (id by PSM-like device)
- Medics (mounted & dismounted)
- Ambulances (Ground & Air)
- MTF & FST (bed & OR availability)
- Unit movement plans
- Pt Movement & Logistic status

Evacuation Assistance

Realtime Tele-Imaging . . .

"Bob, what do you think about this ankle ?

Should we evac
him or not ?"

*. . . facilitates time and distance
independent
medical decisions*

■ Design Constraint...

   ↳ Optimized for rapid, high volume medical and surgical decision support
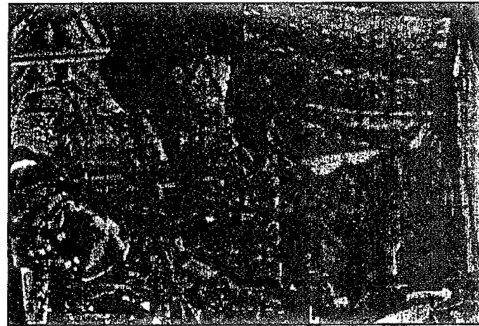
■ Subspecialty Support

   ↳ Dermatology   ↳ Emergency Medicine

   ↳ Radiology   ↳ Behavioral Medicine

   ↳ Neurology   ↳ Pathology

   ↳ Orthopedic   ↳ Surgical

Deployable Digital MTF...

... a template for any size deployable MTF which integrates Telemedicine and hospital information and communications technologies

◯ *Four Subsystems...*

① *Wireless Telecommunications*

② *DINS (Digital Imaging Network Systems)*

③ *Distributed Video*

④ *HIS (Hospital Information Systems)*

ARPA Military Medicine's Vision of the Future
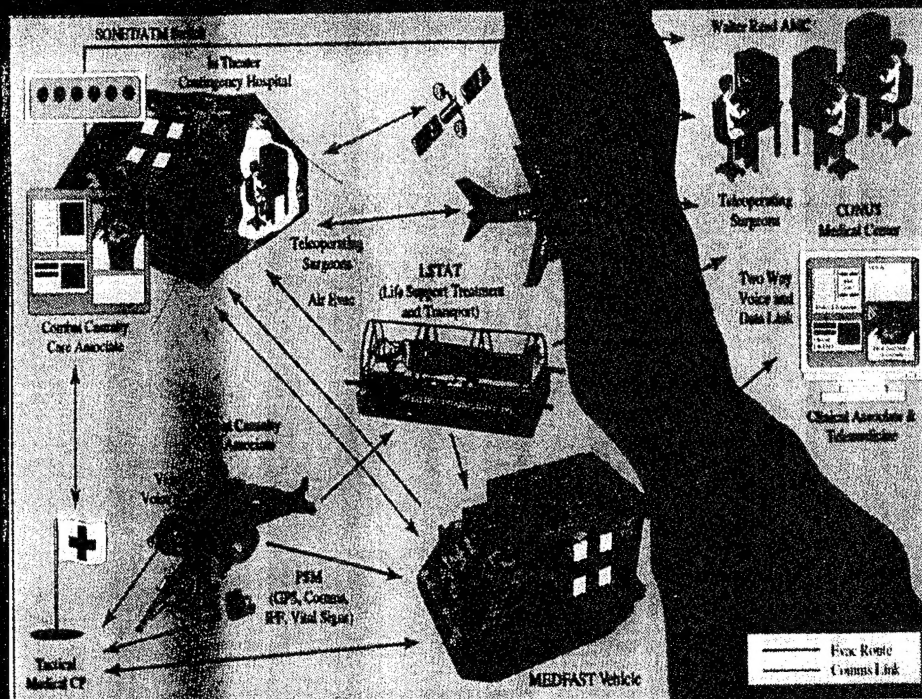
The T-Med Program

DS3 /ATM: 45 Mbs

○ **6 Program Thrust Areas:**

⑥ **Telecoms**

Real-time Multimedia Warfighter XXI

T1 - 1.5 Mbs

Full Video Real-time Still Video Hospital-Level

Satellite 56 Kbs

Video & Batch Imagery Aid stn level

Voice Grade

Upgradeable

Scaleable

Inter-operable

Voice & Single Imagery Aid man level

○ Traditional R&D

| Hard Transition | | Hard Transition |

Rqmt/Doctrine

| Concept Exploration | Advanced Development | Fielding & Sustainment |

R & D Funding   *OP & OM Funding*

○ Rapid Prototyping R&D

OP & OM Funding

Fielding & Sustainment

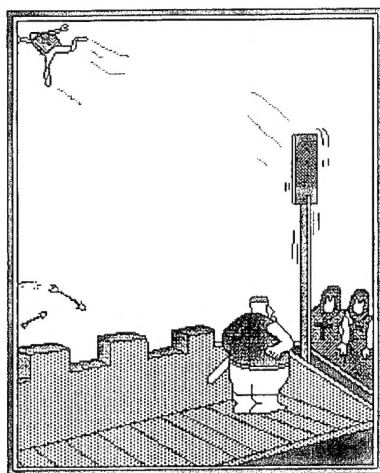| Concept Exploration | *Rqmt/Doctrine* Advanced Development | *Soft Transitions* |

R & D Funding
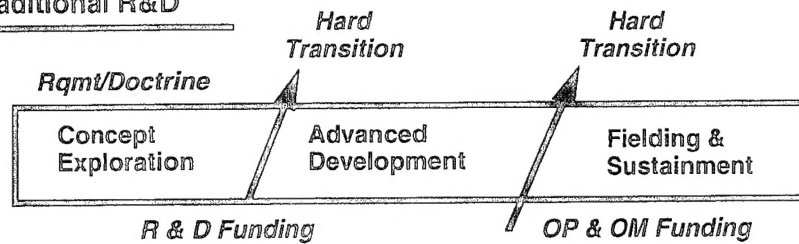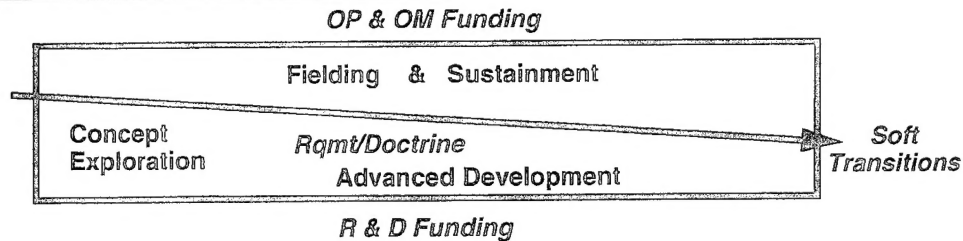
"We must change the way we change "

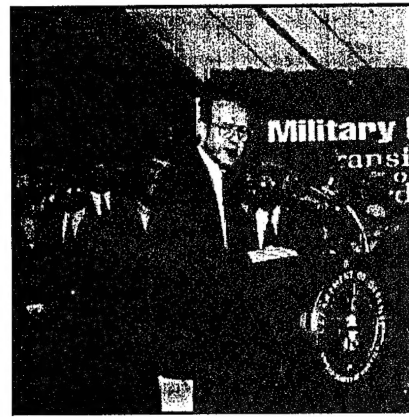# Early Telemedicine R & D -

● "I told you guys . . .

we don't need to send the patient with the image."

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The T-Med Program

6 June 95

○ **Secretary Perry...**

"We need to project our military forces anywhere in the world...Whenever they go, wherever they go, we want them to have the best medical care that science and technology can offer."